





*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## PLAYER SPECIFIC GAME SYSTEM

### 5    TECHNICAL FIELD

This disclosure relates to networked gaming devices, and, more specifically, to a networked gaming system able to change game content and behavior based on recorded data about game players.

### 10   BACKGROUND OF THE INVENTION

To secure a sustainable competitive advantage, casino operators must perform a superior job of attracting new patrons, retaining existing patrons, and stimulating game play. Three broad methodologies adopted by casino operators in some combination to achieve these goals have  
15   historically included gaming environment, types of games or gaming devices, and incentive programs.

Providing a casino environment that encourages visitation by the target patron market segment includes providing an aesthetically pleasing, comfortable casino environment in a favorable location with  
20   attractive ancillary facilities such as restaurants, movie theatres, hotels, water parks, fountains, volcanoes, shows, etc. Providing good customer service is also an element of having a good environment.

Providing desirable slot machines and table games that satisfy players' unique gambling tastes and provide a competitive rate of return is  
25   likewise important.

Additionally, modern casinos use various incentive programs that are usually administered in some fashion by an on-line player management/bonusing system. Examples of such incentive programs include, for example, comps, player points for play, loyalty bonuses such as  
30   Return Play <sup>TM</sup>, system bonuses such as mystery jackpots, or multiplied

jackpot time, short term casino promotions of all types such as: direct mail, cash offers, Match Play offers, drawings, and food, hotel, and merchandise giveaways.

Each of these approaches has corresponding limitations. For instance, with regard to environment, facilities are expensive to create, update, and keep in fashion. Customer service can always be improved but typically at the expense of increased labor costs. At some level there is a point of diminishing returns where increased dollars spent in facilities and customer service do not result in a corresponding increase in play. With regard to games, relative to new facilities, new machines and models have relatively low acquisition costs. Unfortunately, all casinos have access to the same machine models. Thus, as long as all casino operators upgrade their machines to the desirable models, this method provides no competitive advantage to any single operator. With regard to incentive programs, player incentive programs can be customized by each individual operator. If successfully implemented, these programs can provide a competitive advantage. Unfortunately, many of the features of incentive programs have been widely utilized. Once all casinos adopt a particular incentive feature it no longer provides competitive advantage. Comps and player points are examples of this. Casino promotions such as drawings, giveaways, etc. are effective tools, however, none of the current promotions directly apply to a heightened gaming experience.

Embodiments of the invention address these and other deficiencies in the prior art.

## BRIEF DESCRIPTION OF THE DRAWINGS

The description may be best understood by reading the disclosure with reference to the accompanying drawings.

FIG. 1 is a functional block diagram of a game tailoring system according to embodiments of the invention.

FIG. 2 is a functional block diagram of an electronic gaming machine component of the game tailoring system shown in FIG. 1.

### DETAILED DESCRIPTION

5        Embodiments of a game tailoring system provide the ability to tightly integrate game and player management systems. Specifically, they provide a casino the ability to directly affect overall game behavior and interaction to build player loyalty, or to meet other business objectives. One such system can be contained in an integrated communication system  
10        including gaming machines capable of being controlled or enhanced, a gaming network coupled to the machines that includes gaming management functions, and a player management system that communicates and closely operates with the gaming management functions.

15        Such a game tailoring system allows a casino to design and implement a promotion targeted to a unique player group that delivers a positive, loyalty building feature in the form of changes to game content, outcomes, rules of play, and/or overall experience.

      Specific embodiments of the invention allow a casino to capture data  
20        from a player/patron or groups of player/patrons. As described below, the captured data can include all facets about a player, including not only what types of games the player plays, but also how those games are played. For example, data can be gathered regarding whether the player prefers to make few, large wagers or many small wagers with their playing  
25        credits. Additionally, data can be gathered about player preferences not directly related to the games, such as how often a player stays in a casino hotel, or what purchases the player makes in a casino retail store.

      Once stored, this information is analyzed to find key points of play outcomes and patron behavior that can be used as the basis for providing  
30        real-time positive feedback, to the patron's game play experience. This

positive feedback would, in-turn, entice the player to follow some specific operator goals, such as coming back for an additional casino visit, wagering more money on the next visit, playing specific machines, playing at specific times, etc. Implementing these goals can be accomplished by providing rewards, such as, for instance, modifying game content, outcomes, rules of play, bonus awards, and bonus features, etc.

Components of one possible implementation of a game tailoring system are shown in the system diagram of FIG 1. A series of Electronic Gaming Machines (EGMs) 20 are connected via a casino floor communications network 30 to a central computer system 40 including a patron database 42 and several player and promotional management software application modules 50, 52, 54, 56, and 58.

Each EGM 20 includes a player identification and tracking system 60 as a means of identifying a player at the start of a play session. This identification could be performed using a card reader to read a magnetically encoded player's card, a keypad to allow an account number or personal identification number (PIN) to be entered, biometric means, RF tags, etc. The EGM 20 would also include some means for the player to interact with the system such as a keypad, buttons, mouse, trackball, or some other device. An example EGM 20 is shown in FIG. 2. In this example, the player tracking system 60 includes a cardslot 62 in which a player card can be inserted, a keypad 64, and a display 66. The display 66 is used to communicate information about reward features to the player. The display 66 could be an existing game video screen, or a separate screen on the game, or a separate hand held unit given to each player, for instance. Because the player is the central figure in the game tailoring system, communication between the system and the player is highly important. One effective way to communicate to the player is to show the

player specific promotional offers, rules of play, current status, winning notifications, etc. all directly on the game display screen 66.

Some of the messaging that can appear on the display screen 66 includes, for example: time remaining in the promotion, time elapsed in the promotion, games remaining in the promotion, games elapsed in the promotion, dollars remaining in the promotion, dollars spent in the promotion, target game outcomes hit, bonus award amount, enticing messages every x games played, earned messages -- e.g. telling a player what they earned at the end of the promotion, paid messages, celebrating winning or payment of the reward, etc.

The player can additionally check the status of where they are in a particular promotion -- e.g., "1 of 3 targets hit" at any time by communicating with the keypad 64 and/or display 66.

An interface, which in FIG. 2 is illustrated as a bonus engine 70, is a part of the player tracking system 60. The bonus engine 70 typically contains circuitry and processes to manage the portion of the player tracking system 60 that is mounted on the EGM 20, and for interfacing with a set of game electronics 80 within the game itself. Examples of tracking interfaces are well known and are thoroughly described in US 5,655,961, 5,836,817, 5,752,882, which are incorporated herein by reference for all purposes.

In the EGM 20 illustrated in FIG. 2, a player controls the EGM by pressing various control buttons 84, which are coupled to the set of game electronics 80. Example control buttons 80 include "Bet", "Max Bet", "Spin", etc. The set of game electronics 80 can also contain meters 82, such as bonus meters, which can be used to collect player data as the player plays the EGM 20. The types of data collected about the player are discussed in great detail below, but, for example, include such described data as how much the player wagered, and what the outcome of a particular wager was. As the player plays an EGM 20, this data is stored in the set

of meters 82, or elsewhere, and eventually transmitted back to the central computer system 40 as described below.

The bonus engine 80 may also include a set of meters 72, which may be more extensive and collect more data than the meters 82 attached to  
5 the set of game electronics 82.

As a player plays the EGM 20, data about the player, such as that mentioned above, can be sensed, and either stored in the meters 42, 62, or transmitted to a gaming/player network in real-time or near real time.

To conserve the network bandwidth required to send this  
10 information across a network, and the amount of disk space required to store this information, it may be desirable to filter the information at the EGM 20 before sending the information to the central repository in the central system 40. Information could be limited to key strategic details from each game played, or metered counts across games of key events that  
15 occur in an each game played, for instance.

Games are played, for example, by a player spinning reels of a slot type gaming device 20. In some embodiments, the reels may actually be video representations projected on a game screen 86, rather than physical reels themselves. Other embodiments of gaming devices 20 may include a  
20 separate gaming screen 88, which typically would be coupled to the set of game electronics 80.

The casino floor network 30 facilitates the transfer of information between the EGMs 20 and the central system 40. Additionally, a property communication network 90 is coupled to the central system. Nodes on the  
25 property communication network 90 can include, for instance, a food and beverage system 92, retail sales system 94, and hotel system 96. These systems and the data they generate are described in detail below.

The central system 40 includes a patron database 42 and a patron data warehouse 44. The patron database 42 could be an On-Line  
30 Transaction Processing (OLTP) database containing all information

required to respond, in real-time, to the various requests for player information coming from the casino floor as various reward features are being offered to players. The patron data warehouse 44 could be an On-Line Analytical Processing (OLAP) database designed as the storage area  
5 for a wide range of historical player information described above, including gaming history, purchasing history, etc. Data in the OLAP patron data warehouse 44 is used to select candidates for various promotions, and to analyze the results of various promotions.

Interconnected with the databases 42, 44 are several application  
10 modules. A promotions planning and configuration module 52 is used to schedule promotions and set various reward feature configuration parameters. A player enrollment application module 54 is used to enroll new players and to provide real-time player status information to casino personnel. A player extraction module 56 is used to analyze historical  
15 patron information and assign patrons to various promotions. A promotions analysis module 58 is used to determine the results of promotions. Although the modules are shown as being connected to particular databases 42, 44, each of the modules can operate with data from any data available on the central system 40.

20 The game control module 50 is used to control elements of game play. The game tailoring system is designed to provide differing levels of game control responsibility to this module. In the extreme case, the game controller 50 controls not only the reward features but also all game functions. The EGM 20 could be an entirely "dumb" terminal. The game  
25 control module 50 determines handle game logic, determines game outcomes, and commands the terminal to display game results. In a more traditional configuration, the EGM 20 could have all responsibility for base game operation. In this case, the game control module 50 implements game logic and independently determines game outcomes.

Additionally, the game control module 50 logs indefinitely data from the promotions. For instance, for each target or trigger level reached, the game control module 50 could log: outcome attained, time attained, account number of person obtaining, coins wagered, game number, game  
5 denomination. Further, if any reward is given, the game control module 50 can log the bonus payment amount, time of payment, outcomes achieved, and game number, for instance.

#### Data capturing

10 As an ultimate limit, a central player management system coupled to a gaming device or other data collection system could maintain a history of every game ever played by a specific patron. That history could include every detail related to every game played, including for example, amount wagered, how the wager was distributed across all possible wager options,  
15 the outcomes for any intermediate game stages, the results of any player decisions made during the game, the final game outcomes, the amount paid for each of the game outcomes, the occurrence and outcome of special bonus features, the amounts wagered on any follow-up bets such as double-ups and gambles, the amount of money transferred by the player  
20 into the machine, the amount of money transferred by the player off the machine, jackpots, handpays, bonus and other special pays.

In addition to capturing data about the player specifically based on the game, the game tailoring system can also capture details of non-gaming related activities. Because a casino can offer many services, such  
25 as a restaurant, retail store, ticket services such as concierge services, and others, data about such transactions can be collected and attributed to a player. Data such as food preferences, retail spending habits, show preferences, accommodation preferences, time of the year and duration of a stay in the casino hotel, etc. The data could be collected by recording  
30 purchases from retail outlets, restaurant and bar choices, entertainment

purchases or reservations such as shows, movies, theme parks, etc., hotel records, and, if possible, data from sources outside the casino, such as income level, buying level (highest quality, cheapest price or best value). Data about Automatic Teller Machines or other withdrawals at the casinos could be recorded. Such data could be used by the game tailoring system to enhance the game enjoyment for the player.

With reference back to FIG. 1, the information collected about a player, from all sources, could be stored in the player data warehouse 44. As described above, the data could come from the EGMs 20, or from a property wide communication network 90. Player identification could be encouraged by providing an additional benefit, such as granting bonus points for every transaction, on a point per dollar, or by using another encouragement system.

One feature of embodiments of the invention is that not all EGMs 20 coupled to the game tailoring system need be always gathering data about their players, or that the EGMs be capable of the rewarding features of the game tailoring system. Further, these features are independent, such that some games could be gathering data while not participating in rewarding, or vice-versa.

Similarly, an operator of the game tailoring system can select specific players that are eligible for a specific reward, while excluding other players.

#### Decision making and triggering events

Once information is collected about a player, the information can be quantified in a meaningful manner using common characteristics and qualities. Then, when the player next identifies himself or herself to a gaming device, or even as the current game is progressing, the game tailoring system can modify the gaming experience to customize it for that player. This customization gives the players greater enjoyment, and

allows casinos and other installations to differentiate themselves. With all other factors being equal, players will patronize places they enjoy most.

Reward features granted by the game tailoring system to the individual players can be made machine or game type dependent. In other words, the reward feature offered to a player can be made to not only  
5 depend upon the historical information about that player, but also upon the game that he or she is currently playing.

The game tailoring system allows a casino to design promotions that directly effect game play. The casino can customize the gaming experience  
10 to complement their environmental offering. Some broad categories could include, for example, the ability to establish historical behavior criteria to select players to be involved in a promotion, the ability to extract players from the patron database that meet these criteria, the ability to enroll those players into the promotion, recognize when those patrons are  
15 playing, and apply the rules of the promotion to those play sessions.

A module for game control, such as that illustrated as 50 in FIG. 1 could include the ability to be modified for promotion planning and configuration. The promotion and planning module 52 can capture, and report the costs and results of each individual and collective promotion  
20 including; player communication costs, award costs, resulting increased play, trips, etc. This information can be used by a casino to determine the benefit provided to the casino by implementing the game tailoring system.

In addition to modifying game behavior based on historical player information, information gathered within the current play session can be  
25 used to modify the gaming experience. For example, in some embodiments, some reward features may only be available if players are wagering above a certain amount per game played. Other criteria could include wager denomination, where reward features may only be available, or may be substantially better if a player is playing on a higher

denomination machine, such as a \$5.00 game. Wager denomination could be used as a level for gathering data as well.

The amount the player wagers in a gaming session, or other time period could be used to modify reward features. For example, certain  
5 reward features are triggered only after a certain amount has been played in a session, or over a specified time period. For example, if players play \$50 in a single 12 hour period, they could be allowed an extra two bonus pins.

Similarly, reward features may be triggered only as particular bets  
10 are made, for example, bets on all five lines of a multi-line slot machine, or double up bets on poker machines, or if a person only bets on 6 spots on keno machines. Or, reward features may be triggered or adjusted depending on what strategy a player uses. For example, if a video poker player always holds a low pair over four to a flush.

15 Other factors can include actual win/loss, where reward features are triggered or modified when person's actual losses exceed a certain amount during a session. Further, game outcomes or sets of game outcomes can be used to activate or modify a reward feature only after certain game outcomes have been attained. For example, offer an extra ace in the deck,  
20 for 5 hands after a four of a kind has been hit.

Other triggering events monitored by the game electronics 80 or the bonus engine 70 in the EGM could include, for instance: specific game outcomes, series of game outcomes, sets of game outcomes, consecutive game outcomes, X outcomes in N tries, outcome sets/unit time, and  
25 outcomes relative to others. Other triggering events monitored by the bonus engine 70, game electronics 80, or by the game control module 50 could include, for instance: points earned, win/loss per unit of time, visitation frequency, handle per unit of time, continuous play, specific player demographics, such as a player's age, residence, or gender, sets of  
30 player demographics, and series of player demographics. Still other

triggers could be: lucky coin, lucky time, lucky game, and electronic drawing.

Further, the triggering events need not be related to any one particular game, session, or player. For instance, a special triggering  
5 event could be satisfied by a series of triggering events each on a different game, or by completing a series of separate triggering events on the same game or within the same timeframe. Additionally, player accounts can be “grouped” and a special triggering event occur only when all or a portion of the player accounts in a group meet individual triggering events. For  
10 example, a group could consist of 4 players, each of whom must record a full house within a 12-hour period to qualify. If all members succeeded, each player in the group could be rewarded.

Similarly, it is possible for multiple players to be assigned to the same player account. Although unusual, two or more players may desire  
15 to have only a single player account. For instance, perhaps a husband and wife are tied to the same player account. Some embodiments of the invention consider only a first player to qualify for bonuses and other promotions. Other embodiments are designed to link two player identifications to the same account, and a system operate can decide which  
20 individual balances to consider for promotions, rankings, and redemptions. Another embodiment creates a maximum number of players who can be “active” on an account at any given time. For instance, a system may allow a maximum of two cards to earn bonuses for a particular account.

A duration of a promotion can be specified. For instance, the  
25 triggering even must occur within a specified duration to satisfy the promotion criteria. Some duration examples include, for example: until all or a subset of target outcomes are attained by an individual player, for a set period of time, for a set number of games played, or for a set amount of dollars wagered. Additionally, a recurrence time of a particular promotion  
30 can be specified, such that a given 4 hour promotion operates every

morning and ends at noon, without the operator specifically starting and ending the promotion, or, a promotion restarts as soon as it has been completed.

Such trigger events could be monitored by the game control module 50 in communication with the interface 70 contained in the player tracking interface 60 (FIG. 2). The game control module 50 includes processes that continuously compare the data received from the interface 70 to the current trigger events that cause certain rewards (customizations) to be granted. Once granted, the game control module 50 then sends the appropriate signals and commands to the bonus engine 70 and/or the game electronics 80 to provide the desired reward.

In addition to the game control module 50 deciding what a player will best respond to, patrons and players are able to interact with the game tailoring system to choose customization options to suit their preferences. Once selected, these options are stored in the player data warehouse 44, and recalled at the game as required.

One embodiment provides an option screen that appears when a player inserts their player card at a game. The player chooses which options he or she prefers, and the preferences are stored in the player data warehouse 44 for future reference. When the player identified himself or herself in another playing session, the game would automatically be re-configured to meet that player's tastes. Possible options to be stored could include play speed, screen colors, language, fonts, types of bonus screens most preferred, pay schedule category (low volatility versions high volatility for example), personal progressive level assignment - e.g., I want my personal progressive to hit when I get 4 aces, assignment of personalized "special hands" - e.g., I want this certain 5 card poker hand to be my special hand. If I every get this hand I get a bonus

In operation, the player customization data could be stored in the player data warehouse 44. Then, when a player for whom customization

data exists identifies himself or herself to the game tailoring network, the game control module 50 could instruct the stored data to move to the player database 42, or even to the module 50 itself.

Additionally, the trigger events and criteria to cause rewards to be  
5 generated may be adapted to change as results of such rewards are analyzed. For instance the game tailoring system can automatically determine promotion results and make appropriate modifications for improvement. For example, if a promotion had an overwhelmingly  
successful response, it might be appropriate to de-value the amount of the  
10 reward feature in order to reduce promotion costs while maintaining suitable effectiveness levels. Another example: It might be possible to automatically exclude patrons who aren't responding a particular style of promotion and recommend them for some other type of promotion.

#### 15 Changing gameplay

Once triggering events have been established, either by default selection by the game tailoring system, by player preferences, or by evaluating the history of the player's past games, the game tailoring system monitors gameplay and other conditions to determine when the  
20 triggering events have been met. Once met, game enhancing rewards or reward features can be generated for the player.

Characteristics of the ideal reward feature include: operation within boundaries of legal game operation defined by gaming regulations, well-defined and controllable cost, scam-proof, easy to communicate and  
25 comprehend, low cost of implementation and administration, relatively high perceived value to the target patron segment, relatively low actual cost to the casino, provides the desired effect on player behavior, i.e. increased play, increased visits, increased visits off peak time, etc.

Some categories of reward features include the following:

Direct Payments. The game tailoring system can provide direct payments made to the credit meter at the game. Many existing bonuses systems use this reward feature. One downside to using direct payments to the credit meter is that the perceived value to the player and the actual  
5 cost to the casino are exactly equal. Also, given the relatively low hold percentages in a modern casino, these payments are often perceived by the player as below the threshold required to stimulate desired behavior.

Offer Free Games, Extra Credit. The game tailoring system can provide free games or non-cashable credits that can be converted into free  
10 games by the patron. This has some additional benefit in that the actual cost to the casino is less than the perceived value to the patron.

Change the award amounts for specific events. The game tailoring system can change the award amounts. For example, multiplied jackpot time involves changing the awards by multiplying all awards won during a  
15 set time by a predefined bonus multiplier. Additionally, the game tailoring system can provide special additional awards for specific game outcomes for a certain time period or a specific number of games played. Further, the game system can provide awards to outcomes that do not typically have awards. For example, on a spinning reel machine, for a  
20 certain time period pay on blank, blank, blank; or, on a video poker "jacks or better" machine, pay on tens or better. Other possibilities include temporarily "promoting" certain outcome types to a higher award level. For example, all single bar pays now pay as double bars. Still further, other players (in addition to the player who qualified for the award) could  
25 also be given an award.

Offer awards for multiple events. The game tailoring system can offer awards based upon attaining more than one outcome. For example the system can pay additional awards for attaining sets of outcomes over multiple play sessions -- e.g., if a player hits five four-of-a-kinds this week,  
30 the player wins a \$100 bonus. Or, additional awards can be paid for

sequential outcomes -- e.g., if a player hits five low pairs in a row, the player and wins \$5. Further, awards can be paid for sets of outcomes across several game types. For example players win a special bonus if they hit the 5 penguins on the Penguin Pays <sup>TM</sup> machine, the 5 Ferraris on the Reel Racers <sup>TM</sup> machine, and the 5 magic carpets on the I Dream of Jeannie <sup>TM</sup> machine.

Change the outcome probabilities. In some embodiments it is possible for the game tailoring system to increase the probability of occurrence for certain desirable game outcomes for a certain amount of time or number of games played. Possible ways to accomplish this in slot type machines include:

- changing relative weighting of reel symbols
- adding desirable reel symbols
- deleting undesirable reel symbols
- deleting reels
- adding paylines
- temporarily "promoting" symbols. For example, single bars are now worth double bars
- temporarily making "normal" symbols wild symbols
- increasing second screen bonus features.

Possible ways to accomplish this in card based games include:

- adding desirable cards to the deck
- deleting undesirable cards from the deck
- adding wild cards or declare existing cards wild
- "Promoting" cards. For example, 2s are now 2s or Aces

Possible ways to accomplish this in Keno include:

- giving guaranteed "hits" in the form of hints (Pssst, number 7 will be drawn in the next round)
- adding extra "balls" of specific numbers into the draw
- removing "balls" from the keno draw

Change the Rules of Play. In some embodiments, the game tailoring system can temporarily change the rule of games play, in some fashion. Possible examples include, for video slot machines, allowing for the ability to re-spin selected reels to improve final outcome, or to change rules within second screen bonus features - e.g., instead of selecting from 5 possible outcomes, select from only two. In video poker, the system can allow another draw to improve final outcome for certain hand types or allow an additional wager after one or more cards are dealt.

Offer more frequent special features. Many current machines incorporate bonus features, which are triggered by any number of possible methods. Embodiments of the invention trigger cause these features to be triggered more frequently than previously.

Offer casino environmental related prizes. The game tailoring network could provide a reward feature of passes to a show in the casino, a complementary dinner in the casino restaurant, a hotel stay, or a trip to an affiliated property.

Player Points and "Comp Balances". Most casinos offer player points, and "comp dollar" player incentives that accrue as a percentage of total dollars wagered. The game tailoring network could pay awards as additional points or comp dollars, or offer special times where accrual rates are accelerated, or redemption conversion rates are increased.

Discount Coupons. The casino can offer discount coupons to events, shows, etc.

Some types of bonus awards are described in US patents 5,655,961; 5,836,817; 5,752,882; 5,820,459; 6,257,981; 6,319,125; 6,254,483; 6,364,768; 6,358,149; 5,876,284; 6,231,445; 6,375,569; 6,244,958; 6,431,983; 6,371,852; 6,375,567. Some or all of the types of bonus awards described in the above-listed patents can be used as rewards according to embodiments of the present invention.

Overall, to be maximally effective for the game tailoring system, game content should be easily adaptable to include casino environment related features.

5        Example systems

Using the game tailoring system as shown in the figures and as described above, now illustrated are some possible examples of what information could be stored, and how it might be used as a criteria to incite play.

10        1) The game tailoring system can maintain counts of special hands hit by players over a defined time period. If the player hits a predefined set of target hands during the time period the player qualifies for a special positive experience in his next play session. This positive experience might be a special second screen bonus feature, or an extra spin on the  
15        bonus wheel, extra pay symbols on the reels, extra aces in the deck, or any of the other benefits described above.

2) In semi-skill based games such as video poker the game tailoring system keeps track of play decisions relative to optimum play. For example, when faced with a draw hand that has a low pair & three to a  
20        flush, the patron may make the non-optimal decision to play for the flush. The game tailoring system quantifies and accumulates this non-optimized play, which is used as a metric to decide how much to reward a player. This prevents the casino from offering substantial benefits to players who play near optimum, while allowing the casino can to offer more benefits to  
25        players who play considerably off optimum.

3) Because the game tailoring system maintains histories of specific outcomes, over time it provides a loyalty-building award triggered when a player has an overly long "dry spell". For example, if a particularly desirable game outcome has a frequency of 1 in 400 games and a player  
30        doesn't get this particular outcome after playing for 10,000 games. The

system offers the player a special play period during which lesser outcomes are artificially promoted to this more desirable outcome.

4) In another example, the game tailoring system maintains the occurrence of target hands by player for a particular group, or team of  
5 players. This team of players then competes against another team of players. The system awards a prize to the group with the greatest number of target hands over a specified time period.

5) The system can maintain detailed records of spend per visit. Then, if the player agrees to exceed his average spend per visit by x on his  
10 next visit, the system offers some enticing play feature, an extra bonus symbol on the reel, or an extra spin of the wheel on certain conditions,

6) The system can record and track player behavior relative to money management. For example, a player might tend to end a play  
15 session when the amount of accumulated credits exceeds his initial buy-in by a factor of ten. When this condition occurs, the game tailoring system offers a special enticement if the player continues play.

7) By tracking details of game types and models played, the game tailoring system can determine the "volatility level" preferred by the customer. For example some patrons prefer highly volatile games with  
20 paybacks that center around low frequency - high prize value awards. Others prefer games with low volatility. Because the system already stores this information, either by requesting the information directly from the player, or by monitoring the players gaming history, the system can automatically configure the nature of the incentive rewards to meet the  
25 player's desires. For example, the high volatility seeker might appreciate an award which would give him a perceived "edge" in attaining desired target outcomes, which could be an extra "ace in the deck" for example on a Aces bonus poker.

8) By tracking particular game outcomes (e.g. four of a kind),  
30 jackpots or prizes can be offered for particular combinations of game

outcomes achieved over a defined period of time (e.g. an award to the first player in October that gets five independent four of a kind hands that are sequential, such as four threes, four fours, four fives, four sixes and four sevens).

5

Costs to implement a game tailoring system such as that described above could be offset by increased player revenue. Specifically, because of the heightened gaming experience, more players will play a game tailoring system than a regular system. Additionally, players will be willing to  
10 spend more for the increased gaming experience.

One method to determine and control the exact costs of reward features could be to use a pool based method. In this method, pools are accrued as a percentage of coin in from a single player or a group of players. Awards are deducted from the pool. Awards size and frequency  
15 are governed by pool size. A simple example would be, if the pool is greater than zero, awards are paid. If the pool is less than zero, awards are not paid.

Another method to control cost is the fixed amount method. Using this method, a fixed amount of can be set per person, per player group, per  
20 machine group, per certain time period, or per number of games played. Promotions are designed to expire when this fixed amount has been exhausted.

In another method, a theoretical expected value is calculated. For reward features that affect game rules, outcome probabilities, or tie  
25 awards to specific game outcomes it is possible to compute, a priori, the theoretical expected value of the percentage of money wagered that will be returned to the player in the form of prizes that result from the reward feature. Once this value is known, the casino can: reduce the payback of the "base game" to compensate for the increased payback associated with  
30 the reward feature, reduce payback associated with other bonus features,

or keep payback of the base game and other bonuses constant and assume that reward features will be funded by increased play that results from promotion.

Reward features in the game tailoring system are always built with  
5 a specific objective relating to player behavior. Examples include increased player visits, increased money wagered per visit, increased play on machines that provide better hold percentages for the casino, and increased play on higher denomination machines.

The system can be structured to automatically evaluate the response  
10 of those patrons enrolled in a specific promotion. The system provides the casino with the ability to measure the actual results with the intended results. The system can also measure the costs associated with promotion implementation and reward features. With this information, the system determines the final financial impact of a promotion.

15 Although examples of machines and processes have been described herein, nothing prevents embodiments of this invention from working with other types of machines and processes. Implementation of the game tailoring system is straightforward to implement in light of the above description. As always, implementation details are left to the system  
20 designer. Inclusion of description or illustration of a function in either the gaming device or the remainder of the system is not dispositive that the function is located in or must be performed there.

Thus, although particular embodiments for a game tailoring system has been discussed, it is not intended that such specific references be  
25 considered as limitations upon the scope of this invention, but rather the scope is determined by the following claims and their equivalents.

## WHAT IS CLAIMED IS:

1. A game tailoring system for a gaming terminal playable by a user identifiable to the system, the system comprising:
  - 5 a player tracking system coupleable to the gaming terminal and structured to record data of a play history of an identified game user playing the gaming terminal; and
  - a player management system structured to provide, based on identical gameplay of two different identified players, different rewards to
  - 10 the two players based on the respective recorded data of the two players.
2. The game tailoring system of claim 1, wherein the player tracking system is further structured to record non game-play data about the identified game user.
- 15 3. The game tailoring system of claim 2 wherein the non game-play data comprises purchase data.
4. The game tailoring system of claim 1 wherein the player management system is structured to cause the gaming terminal to change
- 20 gameplay.
5. The game tailoring system of claim 4 wherein the player management system is structured to change game content.
- 25 6. The game tailoring system of claim 4 wherein the player management system is structured to change rules of a game on the gaming terminal.

7. The game tailoring system of claim 1 wherein the player management system is structured to make direct payments.

8. The game tailoring system of claim 1 wherein the player management system is structured to classify groups of identified players.

9. The game tailoring system of claim 1 wherein the player management system is structured to generate an award based on a condition meeting a triggering event.

10

10. The game tailoring system of claim 9 wherein different players can have different triggering events.

11. The game tailoring system of claim 1 wherein the player management system is structured to send player preferences to the gaming terminal when a player is identified.

12. The game tailoring system of claim 1, wherein the tracked portion of the play history comprises only significant events.

20

13. The game tailoring system of claim 12 wherein a significant event comprises large wins.

14. A game tailoring system for a gaming device playable by a user identifiable to the system, the system comprising:

25

a player tracking system coupleable to the gaming device and structured to record data of a personal preference of an identified game user; and

a player management system structured to cause the personal preference to be effected at the gaming device.

30

15. The game tailoring system of claim 14 wherein the player management system is structured to load the personal preference to the gaming device when the user identifies himself or herself.

5

16. The game tailoring system of claim 15 wherein the personal preference is language selection.

17. On a player tracking network coupled to a gaming terminal  
10 having a gaming display, a method for displaying content on the gaming display, comprising:

generating the content to be displayed on the gaming display;  
pre-storing the generated content on the player tracking network;

and

15 when a triggering event occurs,  
retrieving the pre-stored content, and  
transmitting the pre-stored content to the gaming terminal.

18. The method of claim 17 wherein the playing tracking network  
20 is coupled to a plurality of gaming terminals, each having a respective display, the method further comprising:

selecting one or more of the plurality of displays; and

transmitting the pre-stored content only to the selected one or more displays.

25

19. The method of claim 18 wherein selecting one or more of the selected plurality of displays is based on a location of its respective gaming terminal.

20. The method of claim 18 wherein selecting one or more of the plurality of displays is based on identity of a player playing at the gaming terminal.

5 21. The method of claim 17 wherein the triggering event is different for different players.

22. A player tracking system structured to be coupled to a plurality of gaming terminals, the player tracking system comprising:  
10 a first selector structured to select a group of gaming terminals from the plurality of gaming terminals;  
a second selector structured to select a group of players identified to the player tracking system; and  
a rewarder structured to provide a reward to a selected of the group  
15 of players if the selected player is playing at a gaming terminal within the selected group of gaming terminals.

23. The player tracking system of claim 22 wherein the rewarder is structured to provide a first reward to a first player in the group of  
20 players to qualify for the first reward, and structured to provide a second reward to a second player in the group of players to qualify for the second award.

24. The player tracking system of claim 22, further comprising a  
25 data tracker structured to track gameplay data from the selected group of terminals.

25. The player tracking system of claim 22, further comprising a  
data tracker structured to track gameplay data about the selected group of  
30 players.

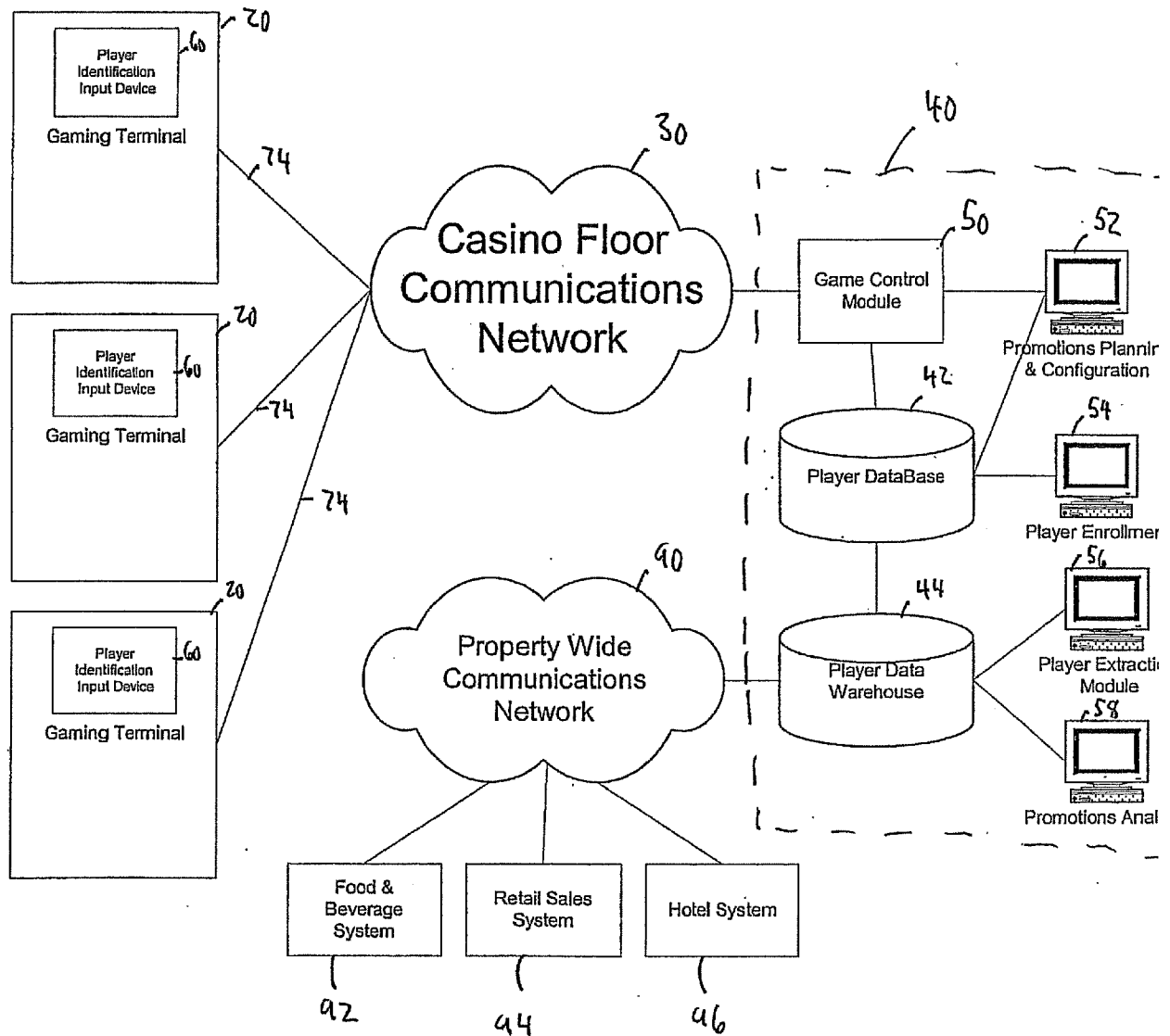


Fig 1

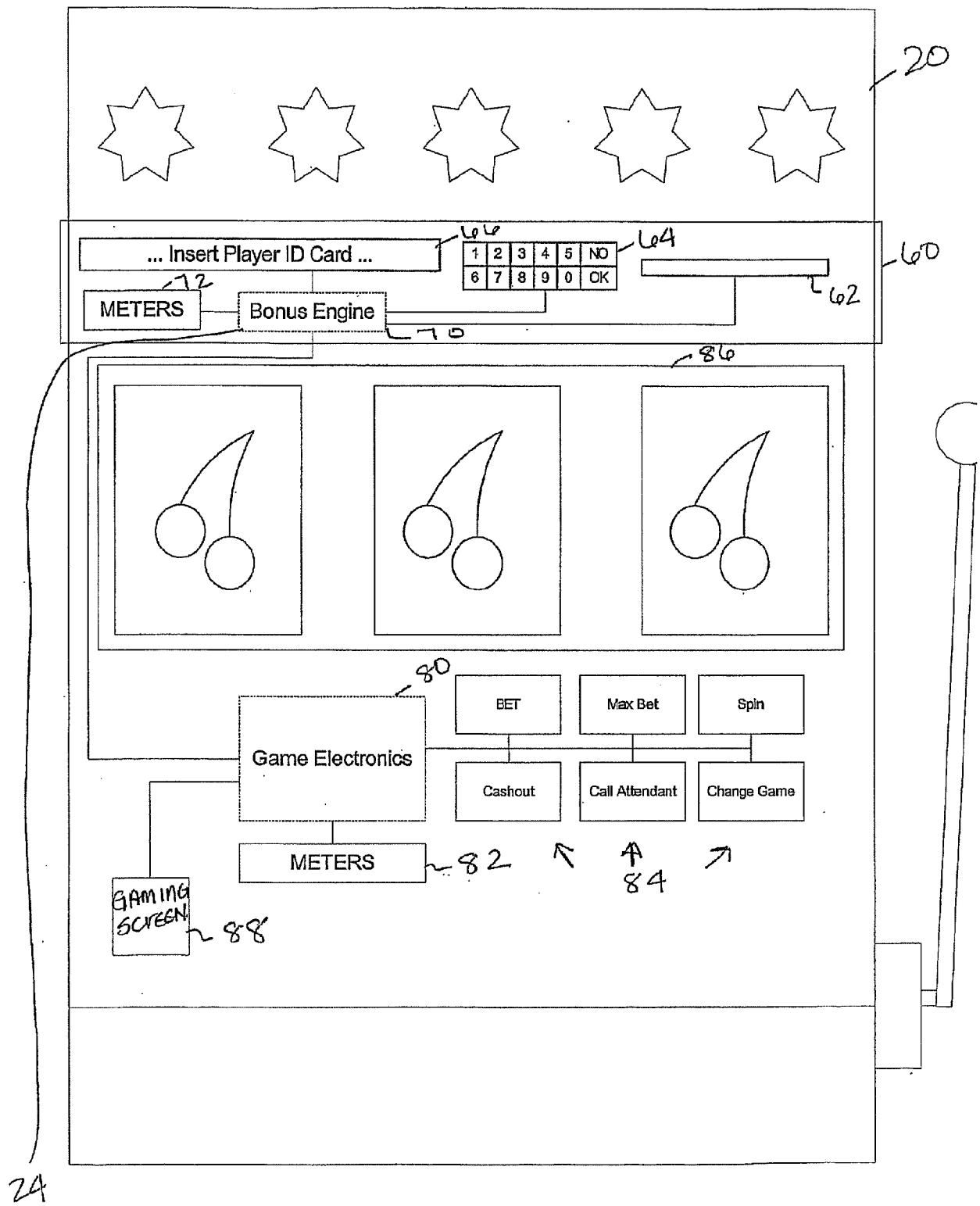


FIG. 2

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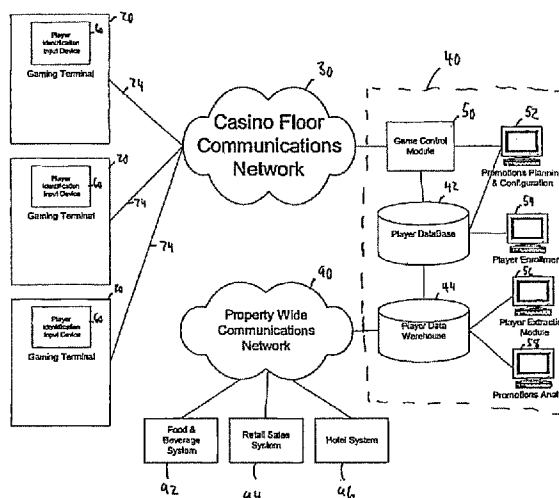
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60/323,499 18 September 2001 (18.09.2001) US
- (71) Applicant: ACRES GAMING INCORPORATED [US/US]; Suite 150, 7115 Amigo Street, Las Vegas, NV 89119 (US).
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- (84) Designated States (*regional*): ARIPO patent (GH, GM, KB, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:  
— with international search report

[Continued on next page]

(54) Title: GAMING SYSTEM WHEREBY GAME CONTENTS IS CHANGED BASED ON RECORDED DATA ABOUT DIFFERENT PLAYERS



(57) Abstract: Embodiments of the invention provide a game tailoring system that allows a gaming experience to be tailored to an individual player. Player data is tracked as an identified player plays at a gaming device. Additionally, other types of data, such as retail purchases, preferences, and experience are stored. The data is analyzed and triggering levels set which, when satisfied, cause the game tailoring system to modify the gaming experience. The triggering levels can be different for different players. Additionally, data about groups of players or groups of gaming devices can be tracked, stored, and used as reward triggers. Further, depending on the identified player or a group of selected machine, embodiments of the invention can cause messages, graphics, or animations to appear on the game screen.



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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 02/29805

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 G06F19/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, SCISEARCH

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 6 244 958 B1 (ACRES JOHN) 12 June 2001 (2001-06-12) column 2, line 21 - line 47 column 5, line 7 - column 6, line 30 column 7, line 19 - column 8, line 25 column 9, line 65 - column 10, line 17 column 15, line 25 - line 36 column 17, line 45 - column 19, line 36 column 38, line 11 - column 40, line 6 ---	1,7-15, 22-25 2-6,16
X A	US 6 257 981 B1 (GINSBURG ALEC ET AL) 10 July 2001 (2001-07-10) column 2, line 39 - column 4, line 3 column 11, line 15 - line 35 column 19, line 60 - column 21, line 14 --- -/--	1,7-15, 22-25 2-6,16

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone.

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&amp;" document member of the same patent family

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## INTERNATIONAL SEARCH REPORT

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PCT/US 02/29805

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5' 401 023 A (WOOD MICHAEL W) 28 March 1995 (1995-03-28) column 2, line 65 -column 3, line 62 column 5, line 60 -column 9, line 27 column 9, line 44 -column 11, line 68 ---	1,7,9, 10,14
A	US 5 917 725 A (BARAKAT MOHAMED A ET AL) 29 June 1999 (1999-06-29) column 1, line 60 -column 5, line 31 -----	1-25

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 02/29805

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-16, 22-25

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-16, 22-25

System to play a game to a game terminal by an user identifiable to the system, comprising a player tracking system and a player management system, wherein said player management system further comprising means to provide different rewards to two players playing the same gameplay based on respective recorded data of the two players

2. Claims: 17-21

Method for displaying content of a game on a game terminal displaying means, wherein said terminal is coupled to a player tracking network, said method comprising the steps of:

- i) generating the game content to be displayed;
- ii) storing said game content;
- iii) detecting the occurring of a trigger event and accordingly
- iv) retrieving said content and transmitting said content to said terminal.

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 02/29805

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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(71) Applicant: INTERNATIONAL GAME TECHNOLOGY [US/US]; 9295 Prototype Drive, Reno, NV 89511 (US).

(72) Inventor: BROSNAN, William, J.; 4751 W. Creek Ridge Trail, Reno, NV 89509 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

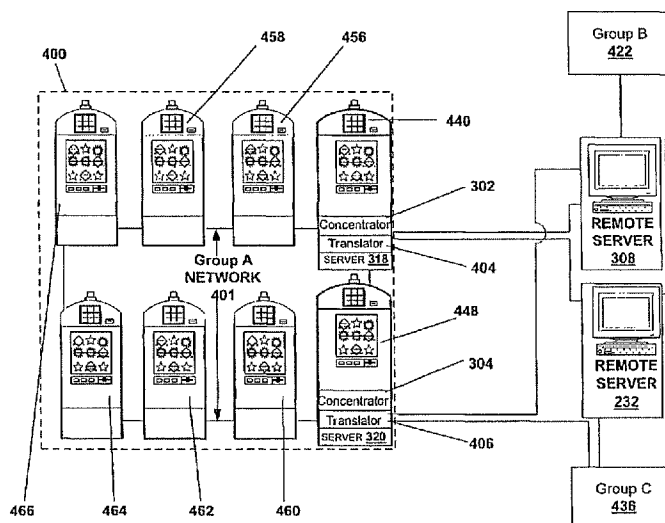
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(74) Agent: WEAVER, Jeffrey, K.; Beyer Weaver & Thomas, LLP, 7th Floor, 2030 Addison Street, P.O. Box 778, Berkeley, CA 94704 (US).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: USING A GAMING MACHINE AS A SERVER



(57) Abstract: A disclosed gaming machine provides a game server. The game server may be used to provide a number of game services, including accounting, bonus game play, progressive game play, game serving and game configuration, to a group of gaming machine connected in a network. The gaming machines can employ a number of standard components including a game server, a concentrator, and a translator. The concentrator gathers game information from a number of gaming machines connected in a network segment. The translator may be used to convert one communication protocol to another communication protocol for the transmission of game information. The game information may be utilized by the game server to provide a game service. When used for game serving, the game server may allow a player to select a game from a list of games stored on the game server on one gaming machine for game play on another gaming machine.

USING A GAMING MACHINE AS A SERVER

## BACKGROUND OF THE INVENTION

This invention relates to game playing methods for gaming machines such as slot  
5 machines and video poker machines. More particularly, the present invention relates to  
hardware and methods for allowing gaming machines to provide gaming information  
services in a network of gaming machines.

A typical gaming machine includes a wide variety of constituent devices. Some  
examples include lights, slot reels, ticket printers, card readers, speakers, bill validators,  
10 coin acceptors, display panels, key pads, bonus wheels, and button pads. Groups of these  
devices provide the features which together present a game. Typically these devices are  
built into the gaming machine.

Modern gaming machines typically utilize a master gaming controller to control  
various combinations of devices to allow a player to play a game on the gaming machine.  
15 For example, game play on a gaming machine usually requires a player to input money  
or indicia of credit into the gaming machine, indicate a wager amount, and initiate game  
play. These steps require the gaming machine to operate input devices including bill  
validators and coin acceptors to accept money into the gaming machine and recognize  
user inputs from devices including key pads and button pads to determine the wager  
20 amount and initiate game play.

Multiple gaming machines can be linked together via a communication network  
to provide various gaming services such as progressive game services. When a gaming  
machine is connected to a network, information about the status of the gaming machine  
may be sent to a remote location and information, including operating instructions for the  
25 gaming machine, may be received from the remote location. Typically, a separate game  
server, such as workstation or mainframe, provides one or more gaming services to the  
gaming machines connected to the network.

For progressive game play, the amount of money entered into a group of gaming  
machines may be pooled together to provide a larger jackpot as part of a wide area

progressive network. As money is deposited in an individual gaming machine, this information can be relayed over a communication network to a progressive game server at some central location where the total amount of money in the jackpot is tracked. The information on the progressive jackpot may be sent out over the wide area progressive  
5 network to display signs displaying the jackpot amount and to gaming machines in the network. When a player playing a game on a gaming machine in the progressive network wins the progressive jackpot, a signal is sent from the gaming machine to the progressive game server and the jackpot is reset to some initial amount. In addition to progressive games, gaming machine networks may provide various other bonus games that involve a  
10 number of gaming machines participating for a common goal.

Accounting is another example of a gaming service which may be provided to a group of gaming machines by a game server. A group of gaming machines provided in a casino may be linked together to form a casino area network. Many current gaming machines contain player tracking devices, including card readers, display panels, and key  
15 pad interfaces, that allow a player playing a game on a gaming machine to enter information into the gaming machine. Using the casino area network, the player tracking information entered into the gaming machine by the player may be sent to a player account server, which is usually a separate PC, workstation, or mainframe, at a remote location different from the gaming machine. Further, other information about the status  
20 of the gaming machine including the amount of usage and whether the gaming machine is operating properly may also be sent via the casino area network to a remote accounting game server.

To provide a network service to a group of gaming machines, the gaming machines are connected in some manner. A group of gaming machines may be connected  
25 together in a daisy chain or a loop with information propagated up and down the chain or around the loop via connections between communication boards located within each gaming machine. Multiple loops or chains of gaming machines connected together may form a gaming machine network. Each entity in the network that receives and transmits messages is a "node." Usually, within the chain or loop in the network, one entity  
30 coordinates the communication of information within the network. This "master" node, which is usually a separate remote server, transmits and receives messages that coordinate the required information flow needed to provide a particular network service

including accounting services for bonus games or progressive games. The master node, which is typically a workstation or mainframe, communicates with all of the nodes that comprise the network. Most or all of the remaining nodes in the network are usually hardware devices (e.g. concentrators) mounted within the gaming machines or the gaming machines. For example, many gaming machines include player tracking hardware which may transmit accounting and player tracking information to a master node. The gaming machine communicates with the player tracking device like another node even when it is mounted within the gaming machine. The player tracking hardware is usually physically mounted within the gaming machine but may be located outside of the gaming machine as well. Typically, gaming machine nodes and hardware nodes transmit information needed by the master node, receive information needed to provide a particular network service such as bonus or progressive game play, echo messages to the master node from other gaming machines and echo messages to from the master node to other gaming machines.

The hardware and communication infrastructure needed to provide the various network services including accounting, bonus game play and progressive game play are usually totally separate for each gaming service. For example, for a group of gaming machines bonus game play service may be provided by a first server, accounting may be provided by a another server, and progressive game play may be provided by yet another server (3 servers total). Further, each network service may be provided over a separate communication network. Complicating matters even further, the servers, gaming machines and other hardware in each network may employ different communication protocols requiring communication translators to convert from one communication protocol to another communication protocol. Typically, the translators are implemented as additional nodes in each network. Also, in some applications, the data from a number of gaming machines may be collected and integrated for transmittal to a server using concentrators.

From the above, it should be apparent that modern sophisticated network based gaming requires expensive hardware and communication infrastructure that must be separately installed and maintained for each game service. As a result, many of the gaming services described above are only implemented in large establishments such as casinos because only large establishments can afford the initial infrastructure costs and

the continual maintenance costs associated with the gaming services. Accordingly, it would be desirable to provide gaming hardware that reduces the installation and maintenance costs associated with implementing gaming services including bonus game play, progressive game play and accounting.

5           Another disadvantage of the current approach to providing network services on a gaming network is that additional hardware and software associated with the various services greatly slows the data transmission rate. For example, on a gaming network with many gaming machines, multiple data concentrators, multiple communication translators and multiple servers, communication delays of up to 2-3 seconds commonly occur  
10   between certain gaming machines and a server providing a game service. For some applications, such large communication delays are unacceptable. For example, for bonus game play, large communication delays may allow players to time their game play to coincide with bonus events on the gaming machine. Accordingly, it would be desirable to provide simpler and more efficient gaming hardware that reduces communication  
15   delays in a gaming machine network.

#### SUMMARY OF THE INVENTION

          This invention addresses the needs indicated above by merging a gaming machine with a game server. The game server may be used to provide any number of  
20   network services to gaming machines including, for example, accounting, bonus game play, progressive game play, player tracking, game serving and game configuration to a group of gaming machine connected in a network. The gaming machines of this invention preferably employ one or more network components such as a game server, a concentrator, and a translator. The concentrator may be used to gather game information  
25   from a number of gaming machines connected in a loop or otherwise networked. The translator may be used to convert one communication protocol to another communication protocol for the transmission or interpretation of game information. The game information may be utilized by the game server to provide a game service. When used for game serving, the game server on one gaming machine allows a player or a  
30   casino to select a game from a list of games under the control of the game server for game play on another gaming machine.

One aspect of the present invention provides a gaming machine that can be generally characterized as including (1) a master gaming controller that controls a game played on the gaming machine, (2) a game server that provides one or more game services to a plurality of gaming machines within a network of gaming machines and (3) a communication interface connected to a network of gaming machines. Games played on the gaming machine may include slot games, video poker, video black jack, keno, and lottery. Game services provided by the game server may include progressive game play, bonus game play, accounting, game serving or game configuration.

In preferred embodiments, the game server may include (a) a microprocessor for performing game server functions, (b) a memory device storing game information from a plurality of gaming machines and (c) a memory device storing game information where the memory device is removable from the gaming machine. The game information stored on the memory device may be a number of games played, a number of wins, a number of losses, a game event, and an amount of money wagered for one or more gaming machines. In other embodiments, the game information is game coding instructions that allow a master gaming controller to present the game to a player on the gaming machine or the game information is game configuration information that configures a gaming machine for the game play of a particular game. In preferred embodiments, the gaming machines in the network may be connected in one or more loops using fiber optic connections, wire connections, or wireless connections where the network may be a progressive game network, a casino area network or a bonus game network. The gaming machines may include a concentrator for gathering information from a plurality of gaming machine in the network of gaming machines and a translator that translates one communication protocol to another communication protocol. Typically, the game server is a component in at least one of the plurality of gaming machines in the gaming machine network.

Another aspect of the invention provides a method for providing game services to a group of gaming machines connected in a network using a gaming machine having a master gaming controller and a game server. The method may be characterized as including the following steps 1) communicating with one or more gaming machines on the gaming machine network wherein each gaming machine presents a game to a player playing a game on the gaming machine, 2) determining that a network gaming service is

required for one or more gaming machines in the network and 3) executing a server operation to provide a network gaming service for one or more gaming machines in the network. Additionally, the method may include the steps of (a) sending a signal requesting game information to a plurality of gaming machines connected to the network, (b) receiving game information from one or more gaming machines connected to the network and (c) storing the game information from the plurality of gaming machines on the game server. The games played on the gaming machines may include slot games, video poker, video black jack, keno, and lottery. The game services provided by the game server may include game play, bonus game play, accounting, game serving or game configuration. The network may be a progressive game network, a bonus game network or a casino area network

In preferred embodiments, the gaming machines may contain a concentrator for concentrating game information from a plurality of gaming machines and sending the game information to a translator or to a game server. Further, the gaming machines may contain a translator for translating game information from a plurality of gaming machines from one communication protocol to another communication protocol and sending the game information to a game server. The game information utilized by the game server, concentrator or translator may include a number of games played, a number of wins, a number of losses, a game event, and an amount of money wagered for one or more gaming machines.

Another aspect of the present invention provides a method for providing game serving to a group of gaming machines connected in a network using a gaming machine having a master gaming controller and a game server. The method may be characterized as including the following steps 1) displaying a list of games on a first gaming machine, 2) receiving a game selection signal for a game selection on the first gaming machine and 3) transmitting the game selection signal to a second gaming machine and 4) downloading coding instructions for the game selection to the first gaming machine from a game server on the second gaming machine wherein the coding instructions allow the master gaming controller on the first gaming machine to present the game selection to a player.

Another aspect of the present invention provides a method for providing game configurations to a group of gaming machines connected in a network using a gaming

machine having a master gaming controller and a game server. The method may be characterized as including the following steps 1) configuring a first gaming machine to present a game 2) storing the game configuration information to the game server on said first gaming machine 3) downloading game configuration information for the game to a  
5 second gaming machine from the game server on the first gaming machine wherein the game configuration information allows the master gaming controller on the second gaming machine to present the game on the first gaming machine.

These and other features of the present invention will be presented in more detail in the following detailed description of the invention and the associated figures.

10

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective drawing of a gaming machine having a top box and other devices.

FIG. 2 is a block diagram depicting an example of a gaming machine with server  
15 capabilities connected to a network of gaming machines.

FIG. 3 is a block diagram depicting an example of a gaming machine with server and concentrator capabilities connected in a network to a separate remote server.

FIG. 4 is a block diagram depicting an example of a gaming machine with server, concentrator, and translator capabilities connected in a network to separate remote server  
20 machine.

FIG. 5 is a block diagram depicting an example of a gaming machine with remote server, concentrator, translator capabilities connected in a network.

FIG. 6 is a block diagram depicting an example of two gaming machines with a game server connected to provide gaming services

25 Fig. 7 is a flow diagram depicting a method for providing one or more network game services to a group of gaming machines using a gaming machine with a game server.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Turning first to FIG 1, a video gaming machine 2 suitable for hosting a server of the present invention is shown. Machine 2 includes a main cabinet 4, which generally surrounds the machine interior (not shown) and is viewable by users. The main cabinet includes a main door 8 on the front of the machine, which opens to provide access to the interior of the machine. Typically, the main door 8 and/or any other portals which provide access to the interior of the machine utilize a locking mechanism of some sort as a security feature to limit access to the interior of the gaming machine. Attached to the main door are player-input switches or buttons 32, a coin acceptor 28, and a bill validator 30, a coin tray 38, a belly glass 40, and a monitor mask 42. Viewable through the main door is a video display monitor 34 and an information panel 36. The display monitor 34 will typically be a cathode ray tube, high resolution flat-panel LCD, or other conventional electronically controlled video monitor. Further, the video display monitor 34 may be a touch screen. The touch screen may respond to inputs made by a player touching certain portions of the screen. The information panel 36 is a back-lit, silk screened glass panel with lettering to indicate general game information including, for example, the number of coins played. The bill validator 30, player-input switches 32, video display monitor 34, and information panel are devices used to play a game on the game machine 2. The devices are controlled by circuitry (not shown) housed inside the main cabinet 4 of the machine 2. Many possible games, including traditional slot games, video slot games, video poker, video black jack, keno, video pachinko and lottery, may be provided with gaming machines of this invention.

The gaming machine 2 includes a top box 6, which sits on top of the main cabinet 4. The top box 6 houses a number of devices, which may be used to add features to a game being played on the gaming machine 2, including speakers 10, 12, 14, a ticket printer 18 which prints bar-coded tickets 20, a key pad 22 for entering player tracking information, a florescent display 16 for displaying player tracking information, a card reader 24 for entering a magnetic striped card containing player tracking information, and a video display screen 44. Further, the top box 6 may house different or additional devices than shown in the FIGs. 1. For example, the top box may contain a bonus wheel or a back-lit silk screened panel which may be used to add bonus features to the game

being played on the gaming machine. During a game, these devices are controlled, in part, by circuitry (not shown) housed within the main cabinet 4 of the machine 2. The top box 6 is designed to be removable from the machine 2. Typically, the top box 6 is replaced to repair a device within the top box 6 or to install a new top box 6 with a different set of devices.

Understand that gaming machine 2 is but one example from a wide range of gaming machine designs on which the present invention may be implemented. For example, some suitable gaming machines do not have top boxes or player tracking features. Further, some gaming machines are designed for bar tables and have displays that face upwards. Those of skill in the art will understand that the present invention, as described below, can be deployed on most any gaming machine now available or hereafter developed.

Returning to the example of Figure 1, when a user wishes to play the gaming machine 2, he or she inserts cash through the coin acceptor 28 or bill validator 30. At the start of the game, the player may enter playing tracking information using the card reader 24, the keypad 22, and the florescent display 16. Further, other game preferences of the player playing the game may be read from a card inserted into the card reader. During the game, the player views game information using the video display 34. Other game and prize information may also be displayed in the video display screen 44 located in the top box.

During the course of a game, a player may be required to make a number of decisions, which affect the outcome of the game. For example, a player may vary his or her wager on a particular game or make game decisions which affect the outcome of a particular game. The player may make these choices using the player-input switches 32, the video display screen 34 or using some other device which enables a player to input information into the gaming machine. During certain game events, the gaming machine 2 may display visual and auditory effects that may be perceived by the player. These effects add to the excitement of a game, which makes a player more likely to continue playing. Auditory effects include various sounds that are projected by the speakers 10, 12, 14. Visual effects include flashing lights, strobing lights or other patterns displayed from lights on the gaming machine, from lights on the top box 6 or from lights behind the belly glass 40. After the player has completed a game, the player may receive game

tokens from the coin tray 38 or the ticket 20 from the printer 18, which may be used for further games or to redeem a prize. Further, the player may receive a ticket 20 for food, merchandise, or games from the printer 18.

FIG. 2 is a block diagram depicting a specific example of a gaming machine network including at least one gaming machine with server capabilities. The network of gaming machines is comprised of three groups, group "A" 200, group "B" 222, and group "C" 226. Group "A" 200 contains eight gaming machines 240, 256, 258, 260, 262, 264, and 266 connected in a loop using the group "A" network 201. Group "B" and group "C" each contain two or more gaming machines (not shown) connected in a network loop.

The connection architecture for the gaming machines in each group is not limited to a loop. The gaming machines of group "A" 200, group "B" 222, and group "C" 226 may be connected in any topology that allows the gaming machines in each group to communicate and receive messages from at least one entity connected to the group that controls the information flow on the group network. Further, the network may employ various communications protocols such as Ethernet, token ring, FDDI, TCP, UDP, and various proprietary protocols.

The connections between gaming machines in a group network may utilize a number of different connection media including, for example, fiber, copper wire, wireless or combinations of these. Further, the media employed for each group of gaming machines may be different. For example, group "A" 200 may use a fiber optic connection, group "B" 222 may use a combination of fiber optics and wireless connections and group "C" 226 may use a wireless connection.

The gaming machines of group "A" 200 including machines 240, 256, 258, 260, 262, 264, and 266 are separately connected to a concentrator network 221 which is connected to a concentrator 220. The gaming machines 240, 256, 258, 260, 262, 264, and 266 are also connected to a second network, 201, with a distinct connection system separate from the connection system of the concentrator network 221. For communicating with the concentrator 220, each of the eight gaming machines of group "A" 200 contains a SMIB (SMart Interface Board) including SMIBs 202, 204, 206, 208, 210, and 212. The SMIB is a protocol board that enables communication between

the gaming machine and the concentrator. The SMIBs in each gaming machine are connected to the concentrator network 221 and are not utilized in the group "A" network 201. Usually, a concentrator is used for a defined number of gaming machines that form a group that may be connected in a loop for example. More generally, a concentrator  
5 collects messages from an arbitrary group of nodes such as the gaming machines that form a local network or network segment and distributes messages to the same group of nodes from another source such as a remote server. At the hardware level, the concentrator may be used to reduce the number of wires in a network service system. For example, the concentrator "A" 220 may have as inputs eight separate wires from each of  
10 the SMIBs in gaming machines 240, 256, 258, 260, 262, 264, and 266 and output one wire which is connected to the translator 230. The wires from each of the eight gaming machines form the concentrator network 221. In the example of Figure 2, the group "B" gaming machines are connected to the concentrator 224 and the group "C" 226 gaming machines are connected to the concentrator 228.

15 As mentioned, gaming machines may be connected by heterogeneous networks. In the example of Figure 2, one such network is designated concentrator network 221 and another network is designated group "A" network 201. These separate networks connect the same set of group "A" gaming machines, but provide different network services to the machines. For example, network 221 may provide accounting services  
20 while the group "A" network 201 provides game serving. Multiple service networks connecting the same group of gaming machines is fairly common because of the manner in which gaming network services have evolved in the gaming industry. For example, initially, one network gaming service such as accounting was deployed on a group of gaming machines using a particular set of computers, concentrators, translators,  
25 communication protocols and connection system. Later, when another network gaming service such as progressive game play was deployed on a group of gaming machines with accounting network services, it was overlaid over the network providing accounting network services using a second set of computers, concentrators, translators, communication protocols and connection system rather than making the progressive  
30 game play service compatible with the infrastructure of the accounting network services. As the number of network game services has grown, the approach of adding a new separate infrastructure for each additional network gaming service has become quite

cumbersome in terms of installation and maintenance of the total network infrastructure. Hence, the need for inventions that reduce the complexity of the network infrastructure.

The purpose of the concentrator is to gather information from multiple gaming machines and transmit it to another entity in the network. For example, concentrator "A" 5 220 gathers information from the eight gaming machines of group "A" and transmits it to a translator 230 which transmits it to a remote server 232. The translator 230 converts messages received in one communication protocol to a communication protocol which is understood by the remote server 232. The communication protocol used by each concentrator including 200, 224, and 228 may be different. Thus, concentrator "A" 220 10 may use a communication protocol which is different from either concentrator "B" 224 or concentrator "C" 228. Thus, one or more translators may be required to convert the communication protocols of the concentrators to the communication protocol of the remote server 232.

The remote server 232, which is usually a PC or mainframe, may direct the 15 information flow on the gaming machine network. For example, when performing accounting functions, the remote server 232 may send polling messages to each gaming machine in the accounting network at regular intervals requesting game information including the number of games played, the amount of money deposited into the gaming machine, the amount of money dispensed from the gaming machine, the wins on the 20 gaming machine, and the losses on the gaming machine. For each gaming machine, the information gathered by the remote server 232 may be used to provide an audit trail for accounting and security purposes. The remote server may store the gathered information from each gaming machine in a database 234.

As another example, the remote server 232 may provide gaming information 25 services that allow progressive game play. For progressive game play, the remote server 232 may send polling messages at regular interval to all of the gaming machines in the progressive network requesting game information including whether a game has been initiated, the amount that has been bet and whether a jackpot has been won. When group "A" 200, group "B" 222, and group "C" 226 are part of the progressive network, the 30 gaming machines in the each of the loops send the requested information to the remote server 232. The remote server 232 uses the information from the gaming machines to calculate a total jackpot for the gaming machines in the progressive network which is

based on all of the money bet in the progressive network. The jackpot amount is usually reset after a win on one of the gaming machines in the progressive network. The remote server 232 sends messages containing the jackpot amount to the gaming machines and to one or more display signs including a sign 239. This information is used by the gaming machines and the display signs to display the amount of the progressive jackpot which is usually continually changing.

As another example, the remote server 232 may provide gaming information services that allow bonus game play. For bonus game play, the remote server 232 may send messages at regular interval to all of the gaming machines in the bonus network requesting game information including whether a game has been initiated, the amount that has been bet, and whether certain game events have occurred. When group "A" 200 is part of the bonus network, the gaming machines in network 201 send the requested information to the remote server 232. Group "A" 200, group "B" 222, and group "C" 226 may be part of the same bonus network, or they may form separate networks, or separate parts of them may form small bonus networks.

To determine when bonus play is initiated, the remote server 232 uses the information from the gaming machines to compare against a bonus procedure that may be implemented as a script for example. The bonus script may contain one or more gaming events sequences that initiate bonus game play. For example, a bonus script may include the instructions 1) when game event "A" occurs on any of the gaming machines in the bonus network initiate bonus play or 2) when the total amount wagered on all of the gaming machines in the bonus network exceeds a certain amount initiate bonus game play. For each bonus network, the gaming machine may follow the same bonus script or utilize a different bonus script. Thus, when group "A" 200, group "B" 222, and group "C" 226 are separate bonus networks, the game events that trigger a bonus game may be different for each group and bonus game play may be initiated at different times for each group. When bonus game play is initiated, the remote server 232 sends a message to the gaming machines to initiate game play and may send a message to a display sign including 239 indicating that bonus play has started.

Preferably, all network services are provided on a single network and use a single remote server. Given the heterogeneous nature of modern gaming machine networks, however, this is often unduly optimistic. Thus, to provide accounting, bonus game play,

or progressive game play, a separate network and remote server is frequently used for each of the three gaming service. Thus, the accounting network, the bonus network and progressive network, described using the remote server 232, the translator 230, the concentrator 220 and the concentrator network 221 for illustrative purposes, may each  
5 use a similar network set-up. However, using the remote server 232, the translator 230, the concentrator 220, and concentrator network 221, only one of the three gaming services may be provided to group "A" 200. To provide all three gaming services to group "A" 200, three remote servers, three sets of network connections, three sets of concentrators, and three sets of translators are typically utilized. The hardware and  
10 connection schemes used to provide each gaming service may be different. Thus, the remote server used to provide accounting gaming services may be a mainframe computer while the remote server used to provide bonus gaming services may be a PC or workstation. Further, the connections, physical media, and communication protocols used in each gaming service network may be different.

15 The route a message travels over the network between a remote server and a gaming machine or between the gaming machine and the remote server is the communication path. The communication path of a message between a gaming machine and a remote server, depends on the configuration of the communication hardware between the remote server and the gaming machine and the communication protocol  
20 used by the remote server and the gaming machine. The delay time between when a message is sent from the remote server and when it is received by the target gaming machine is a function of the communication path and the type of communication hardware in the path. For conventional gaming machine networks in which communication paths with many nodes i.e. translators, concentrators, and multiple  
25 gaming machines, the delay time between the remote server and target machine may be as large as 2-3 seconds.

The remote server computer 232 may send messages to each gaming machine by broadcasting the message over the network. After passing through the translator and the concentrator, the message sent to each gaming machine may be received by one gaming  
30 machine and then forwarded to another gaming machine in the gaming network. For example, when a message requesting information is received by the gaming machine 240 from the remote server 232, the gaming machine 240 may store the message and

then forward the message to gaming machine 248 using the group "A" network 201. Then, gaming machine 248 may store the message requesting information and then forward the message to gaming machine "E" 260. Thus, the communication path for this message from the remote server 232 to the gaming machine 260 is the translator 230, the concentrator 220, the gaming machine 240, and the gaming machine 248. This process of receiving and forwarding messages may be repeated until all the gaming machines in the loop or chain receive the message from the remote server computer. The remote server computer may also broadcast messages to the gaming machines of group "B" 222 and group "C" 226.

When a gaming machine sends information to the remote server 232, the communication path between the gaming machine and the remote server may be the same or different as the communication path between the remote server and the gaming machine. The message may be sent directly to the concentrator and through the translator to the remote server or the message may be forwarded by a number of gaming machines before it reaches the concentrator. For example, when gaming machine 266 sends a message the remote server 232, the message may be sent to the concentrator "A" 220 via the concentrator network 221. Then, the concentrator "A" 220 sends the message to the translator "230" and the translator sends the message to the remote server 232. For this example, the communication path is the concentrator 220 and the translator 230. As another example, a message from the gaming machine 266 may be sent to gaming machine 258, gaming machine 258 may forward the message to gaming machine 256, gaming machine 256 may send the message to the concentrator "A" 220 via the concentrator network 221, the concentrator "A" sends the message to the translator "230" and the translator sends the message to the remote server 232. The communication path for this message is the gaming machine 258, the gaming machine 256, the concentrator "A" 220, and the translator 230.

In group "A" 200, Gaming machine "A" 240 contains a game server 218 which may provide gaming information services to the eight gaming machines of group "A" 200 including 240, 256, 258, 260, 262, 264, and 266. As described above, some examples of gaming services are accounting, bonus game play and game progressive play. The game server 218 may provide one or more of these gaming services. For example, the game server 218 might provide accounting, bonus game play and progressive game play

services for the gaming machines of group "A" 200. Any necessary services not provided by game server 218 might be provided by server software running on remote server 232 for example. Preferably, the game server 218 performs gaming services in a manner similar to that described for remote server 232.

5           The game server 218 may be implemented as a separate hardware unit which may be incorporated into the gaming machine or preferably as software using a microprocessor and memory devices utilized by the gaming machine 240 to present a game on the gaming machine 240. Further, as described in more detail with respect to Figure 6, the gaming machine hardware may be augmented with additional hardware to provide the  
10   game server 218 functions. For example, additional memory storage devices may be added to the gaming machine 240 to implement the game server 218.

          In Fig. 5, the use of a game server like a remote server 232 is described. The game server 218 may send messages requesting information from each gaming machine, receive messages containing game information from each gaming machine, and send  
15   message containing gaming instructions to each gaming machine to enable accounting, bonus game play, and progressive game play services. For example, when providing bonus game play services, the game server may poll each gaming machine in group "A" 200 for different game events such as a particular game outcome on one of the gaming machines. When a particular game outcome occurs on one of the gaming machine, the  
20   game server 218 may direct each gaming machine in the group to present a bonus game. The gaming machine server 218 may communicate with the other gaming machines of group "A" 200 using the group "A" network 201 and a communication board located in the gaming machine 240. In one specific embodiment, the group "A" network 201 is a fiber optic loop which as described above is separate from the concentrator network 221.  
25   Further, 239 for bonus game play and progressive play, the game server 218 may send messages and operating instructions to the display sign. However, in this example, unlike examples employing the remote server 232, the game server 218 does not provide accounting, bonus game play, and progressive game play services to the gaming machines of group "B" 222 or of group "C" 226.

30           Using the game server 218 and the gaming service network comprising the remote server 232, translator 230, concentrator 220 and concentrator network 221, multiple gaming services may be provided to the gaming machines of group "A" 200. For

example, for group "A" 200, the gaming service network may be used to provide accounting services while the game server 218 may be used to provide bonus game play and progressive play. As another example, the gaming service network may be used to provide progressive game play while the game server 218 may be used to provide  
5 accounting and bonus game play. Extending this example to group "B" 222 and group "C" 226, a gaming machine with a game server may be utilized to provide bonus game play and progressive game play or some other combination of game services to each of these groups.

Using a game server to provide gaming services may eliminate some of the  
10 network infrastructure. For example, to provide bonus game play, accounting, progressive game play services for the group "A" 200 gaming machines, traditionally a separate network with a separate remote server, translator and concentrator is used for each gaming service. When the game server 218 provides bonus game play service and progressive game play service while the remote server 232 provides accounting service,  
15 two remote servers, two concentrators and two translators and their associated network connections may be eliminated. The elimination of this hardware may reduce the infrastructure and the maintenance costs needed to provide the progressive game play service and bonus game service to group "A" 200.

A local game server may also reduce the transfer time for messages between the  
20 game server and the gaming machines during a bonus game or other network activity. For example, to send a message from the remote server 232 to gaming machine 266, the message may pass through a translator, a concentrator, and gaming machines 240, 256 and 258. This communication path may result in a message transfer time of between 2-3 seconds. A delay of this magnitude may enable a player watching a group of gaming  
25 machines with bonus game play to participate only when a bonus game is offered. Usually, a bonus game is an additional award shared by all the players participating in the bonus game. Thus, when a player is able to time their game play to coincide with the bonus game, an award of some type is guaranteed to the player. Obviously, this game playing strategy negatively impacts casino operators. Using the game server 218  
30 connected to a network, the message transfer time between the server 218 and any gaming machine connected to the group "A" network 201 may be significantly reduced to a level well below the 2-3 seconds that would allow unfair activity. Further, using the

game server 218, the reduced message transfer time may enable bonus games where a game on one gaming machine connected to the server is affected in real-time by a game event on another gaming machine connected to the server.

5 In one implementation, game server software or firmware may be a standard feature in some or all network gaming machines. For example, in group "A" 200, gaming machines, including machines 240, 248, 256, 258, 260, 262, 264 and 266, may each contain a game server such as game server 218. However, the capabilities of all the game servers may not be utilized in each group of gaming machines. For example, in group "A", the gaming machine 240 with the server 218 may be used as the group server  
10 providing one or more game services to all of the gaming machines while the server capabilities in gaming machines 256, 258, 260, 262, 264, and 266 are not employed. When the server capabilities in a gaming machine are not employed, the gaming machine responds to requests for information and echo messages like a gaming machine without a server. As another example, when the gaming machine 256 contains a standard game  
15 server, the game server may be used to coordinate the information flow for various game services in group "A" 200 while the server capabilities in gaming machines are 240, 258, 260, 262, 264, and 266 are disabled. Other groups of gaming machines including group "B" 222 and group "C" 226 may utilize a gaming machine with a standard game server to provide one or more game services.

20 One advantage of providing a standard game server in each gaming machine may be a reduction in down-time when a game server is repaired. Currently, when a server is damaged or due for service, the gaming services provided by the server are lost while the server is repaired or inspected unless a back-up server is maintained for such situations. Acquiring and maintaining a back-up server is expensive. However, when a standard  
25 game server is employed in each gaming machine, another gaming machine may be quickly configured as the server while the server in the other gaming machine is repaired or the gaming machine is replaced. Thus, the redundancy provided by a group of gaming machines with standard game servers may reduce the down-time associated with repairing a damaged server and minimize the time where the gaming services provided  
30 by the game server are lost.

When a gaming machine is used a game server, the game server functions may be transparent to a game player using the gaming machine to play a game. For example,

when gaming machine "A" with game server 218 is used as a game server for group "A", a player may use the card reader 242, the display 244 and inputs 246 to play a game. In the same manner, a player may use the card reader 250, display 252, and inputs to play a game on gaming machine 248 which is not affected by the game server. Thus, when  
5 playing a similar game on gaming machine "A" and gaming machine 258, a player may not notice differences in game play between the machines.

The game server 218 in gaming machine 240 may provide additional game services to the gaming machines of group "A" 200 including configuration services and game serving. Configuring a gaming machine for game play is usually a time-consuming  
10 task. Typically, for each gaming machine that is configured, the configuration information is manually loaded by a machine operator. Some examples of configuration information include a current hopper limit, a credit limit, a jackpot limit, an enabled progressive limit. The configuration information may vary at different casino locations and may also vary between different gaming jurisdictions. This configuration process  
15 may be partially automated by using the game server 218 to store gaming configuration information. Once one gaming machine has been configured, the configuration information may be stored on the game server 218 on gaming machine 240. Further, a number of different gaming machine configurations may be stored on the game server 218. When a gaming machine requires configuration, the stored configuration  
20 information may be transmitted from the game server 218 to the gaming machine. For example, in group "A", configuration information for a type of video slot machine may be stored on the server 218. To configure the gaming machines 256, 258, 260, 262, 264, and 266 as the same type of video slot machine, the configuration information from the game server 218 is transmitted automatically to each gaming machine. Thus, the amount  
25 of manual gaming configuration work may be reduced.

As mentioned, the server 218 may also provide game serving. With game serving, the code containing the instructions used by a gaming machine to provide game play for a particular game is stored on the game server 218. A gaming machine may have the capability to provide game play for a number of games. For example, one video slot  
30 machine including 240, 256, 258, 260, 262, 264, and 266 may have the capability to present 5 different types of video slot games. Using the game server 218, the coding instructions for the slot games as well as the gaming machine configuration information

may be stored on the game server 218. To change a game on any of the gaming machines, a machine operator may send instructions to the game server 218 to download a new game and game configuration information to one or more gaming machines. After downloading the new game and the gaming configuration information from the game server to the gaming machine, the gaming machine provides the game play for the selected game. An advantage of using a game server, including 218, is reduced maintenance time to update games on a gaming machine. For example, when a master game copy is updated on the game server, the gaming machines connected to the game server with game serving may automatically download the updated version. In the past, the games on the gaming machine have been updated manually for each gaming machine, which is a time consuming process.

In some implementations of game serving on a game server, a player playing a game on a gaming machine may be able to select a particular game for game play from a list of games. For example, a player playing a game on gaming machine 248 may select a game from a game list displayed on the video display 252 using the inputs 254. The video display 252 may display a name of the game, a pay table, a game sequence or other information for each game on the list. A signal with the game requested by the player is sent to the game server 218 where the coding instructions that enable a gaming machine to present the selected game are stored. The game server 218 downloads the requested game instructions to the gaming machine 248 from the master copy stored on the game server enabling the gaming machine "B" to provide the selected game play to the player. For implementing game serving as a gaming service, one requirement may be a fast download speed. Thus, a high bandwidth connection between the game server and the gaming machine is needed. For example, the group "A" network 201 may use a fiber optic connection scheme to provide the information transfer rate needed to utilize the game server 218 as a host for game serving.

FIG. 3 is a block diagram depicting an example of a gaming machine with server and concentrator capabilities connected in a network to a separate remote server. The remote server 232 and translator 230 (previously described in reference to Fig. 2) are connected to three groups of gaming machines including group "A" 300, group "B" 322, and group "C" 336. Group "A" 300 is comprised of eight gaming machines including gaming machine 340, gaming machine 348, gaming machine 356, gaming machine

358, gaming machine 360, gaming machine 363, gaming machine 364, and gaming machine 366. Group "B" 322 and Group "C" 336 may be comprised of two or more gaming machines per group.

As described with reference to Fig. 2, the remote server 232 and translator 230  
5 may provide one or more gaming services such as progressive game play, bonus game play, or accounting to the gaming machines of group "A" 300, group "B" 322, and group "C" 336. A second remote server 308 and second translator 306 provides one or more other gaming services to group "A" 300, group "B" 322, and group "C" 336. Using a remote server and translator configuration, one remote server and one translator may be  
10 required for each gaming service. To provide 3 gaming services may require three separate remote servers and three separate translators. Thus, the remote server 232 and the remote server 308 may provide two gaming services. For example, remote server 232 and translator 230 provide accounting services while remote server 308 and translator 306 may provide progressive game play to each of the gaming machines in the three  
15 groups. In an alternative embodiment, one of the remote servers provides two or more services.

In group "A" 300, gaming machine "A" 340 contains a game server 318 and a concentrator 302, gaming machine "B" 348 contains a game server 320 and a concentrator 304 and gaming machine "E" 360 contains a concentrator 308. In one  
20 implementation of this invention, other gaming machines may contain game servers and concentrators. Thus, one or more of gaming machines 356, 358, 360, 362, 364 and 366 may contain game servers and concentrators and the gaming machines of group "B" 322 and of group "C" 336 may contain game servers and concentrators. However, in each gaming machine, the game servers and concentrators capabilities may not necessarily be  
25 utilized. Further, the concentrator may be implemented as a separate hardware device but preferably is implemented as software on each gaming machine using the gaming machine hardware used to present a game on the gaming machine.

As described with reference to Fig. 2, for gaming machines connected in a local network, a server, such as server 318 or server 320, may provide one or more gaming  
30 services including bonus game play, progressive game play, accounting, game configurations, and game serving. Thus, the game servers 318 and 320 may provide one or more gaming services to the gaming machines of group "A" 300 using the group "A"

network 301 including the gaming machines 340, 348, 356, 358, 360, 362, 364 and 366. For example, the game server 318 may provide game serving while the game server 320 may provide bonus game play and progressive game play services to the gaming machines of group "A" 300. As another example, for the gaming machines of group "A" 300, the game server 320 may provide game serving, bonus game play and progressive game play and the game server 318 may provide no gaming services.

An advantage of providing multiple gaming services from a single game server, such as server 318 or server 320 in Fig.3 or server 218 in Fig. 2, is that the amount of message traffic may be reduced because some game information sent over the network in a single message may be used for more than one game service. Additionally, the advantage may be realized when using a remote server that provides 2 or more gaming services. This advantage can be realized if the two services share the same format and/or communication protocol. Otherwise a translator may be required. For example, the credits bet on a number of gaming machines may be used to provide accounting services and bonus game play services. When the game server 318 is used to provide both of these services, a message requesting the credit information is sent only once by the game server 318 to each gaming machine. When the remote server 308 provides accounting services and the remote server 232 provides bonus game play, a message requesting credit information is sent by the remote server 308 and the remote server 232 to each gaming machine. Thus, each gaming machine transmits the requested information twice. For example, when remote server 232 request credit information, gaming machine 362 sends the credit information to remote server 232 over the remote server 232 network. When remote server 308 requests the credit information, gaming machine 362 sends the credit information to remote server 308 over the remote server 308 network.

In group "A" 300, three gaming machines have active concentrators. As described with reference to Fig. 2, a concentrator is used to gather gaming information from a number of gaming machines connected in a local network or network segment. For example, a concentrator used for accounting may gather information including metering information, games won, games lost, and credits from a plurality of gaming machines. In Fig. 3, the concentrator 302 receives game information from all of the gaming machines of group "A", including the gaming machine 340 in which the concentrator 302 resides, and transmits the information to the translator 306 and the

remote server 308. The game information from the concentrator 302 is usually in response to game information requests from the remote server 308 pertinent to the game service provided by the remote server 308. Concentrator 302 may also collect messages for presentation to server 318.

5           For the remote server 232, the concentrator 304 receives game information from the gaming machines of group "A" and transmits the information to the translator 230 and the remote server 232. The concentrator 310 in gaming machine 360 in group "A" 300 receives information from group "C" 336 and transmits the information to the translator 230 and remote server 232. In this example, a concentrator 310 located in a  
10   gaming machine in group "A" is being used to gather information from gaming machines in group "C" 336. Another concentrator which may be present in group "C" 336, and may be located in a gaming machine or as a separate device, sends game information from the gaming machines of group C. A separate concentrator in group C is only  
15   necessary if concentrator 310 cannot provide all the necessary information to translator 230.

          Further in the example of Figure 3, group B communications may employ two concentrators, each in separate gaming machine in group "B" 322. These concentrators send separate gaming information from the gaming machines of group "B" to the remote servers 308 and 230.

20           Using gaming machines with concentrators, including concentrators 302 and 304, the concentrator network (see Fig. 2) and SMIBs in each gaming machine used to talk to the concentrators may be eliminated for group "A" 300. The SMIBs are eliminated when game information previously gathered by each SMIB and transmitted to a loop  
25   concentrator for a particular game service (as shown in Fig. 2) is now transmitted by the gaming machines in group "A" 300 over the group "A" network 301 to the concentrators 302 and 304. To send messages to the concentrator and receive messages from the concentrators, the gaming machines require some type of communication interface and protocol. Preferably, this communication protocol for communicating with the  
30   concentrators is implemented in software on each gaming machine and does not require additional hardware. The elimination of the concentrator network and the SMIBs reduces the complexity of the network structure and may reduce infrastructure and maintenance costs. For small gaming establishments, the potential reduction in the maintenance costs

and the infrastructure costs using gaming machines with standard servers and concentrators may enable these establishments to provide gaming services previously considered prohibitive because of the relatively high costs of providing these services.

FIG. 4 is a block diagram depicting an example of a gaming machine with server, 5 concentrator, and translator capabilities connected in a network. As described with reference to Fig. 3, two remote servers may each provide one gaming service including bonus game play, progressive game play or accounting. For example, for group "A" 400, group "B" 422, and group "C" 436, remote server 308 may provide progressive game play services and remote server 232 may provide accounting services. Group "A" 400 is 10 composed of eight gaming machines including a gaming machine 440, a gaming machine 448, a gaming machine 456, a gaming machine 458, a gaming machine 460, a gaming machine 462, a gaming machine 464, and a gaming machine 466. Group "B" 422 may be composed of two or more gaming machines and Group "C" may also be composed of two or more gaming machines.

15 Gaming machine 440 contains game server 318 and concentrator 302 as in Figure 3. In addition, it includes a translator 404. The translators, including 404, may be implemented as a separate hardware device but preferably is implemented as software on each gaming machine using the gaming machine hardware used to present a game on the gaming machine. Gaming machine 448 contains game server 320 and the concentrator 20 304 as in Figure 3. In addition, it includes a translator 406. The game server, the concentrator, and the translator may be standard components in each gaming machine in group "A" 400 as well as the gaming machines of group "B" 422 and of group "C" 436. For illustrative purposes, these three parts are identified in gaming machine 440 and gaming machine 448. As described with reference to Fig. 3, the game server 318 and the 25 game server 320 may each provide one or more game services including bonus game play, progressive game play, accounting, game configuration and game serving. Further, the concentrator 302 and the concentrator 304 may gather game information from a number of gaming machines. The eight gaming machines of group "A" 400 are connected using a fiber optic loop, for example, to form a Group "A" network 401. Using the 30 group "A" network 401, gaming machines of group "A" may send and receive messages containing game information from the game servers 318 and 320 and the remote servers 232 and 308.

As with the embodiments described above, many different gaming services may be provided with the game service network and the associated hardware in Fig. 4. For illustrative purposes, an implementation of one set of services is described for the hardware shown in Fig. 4. However, the types of game services and potential  
5 implementations are not limited to the following example. In this example, the remote server 308 provides progressive game services and the remote server 232 provides accounting services. In group "B" 422, a translator (not shown) transmits accounting information to the accounting remote server 232 and receives accounting information requests from the remote server 232 to the gaming machines of group "B". Further, for  
10 the gaming machines of group "B" 422, a translator (not shown) transmits progressive game play information to the progressive game play remote server 308 and receives progressive game play information and instructions. The accounting and progressive game play information are concentrated from the gaming machines in group "B" using concentrators (not shown) which may reside in each gaming machine. In group "C" 436,  
15 a gaming machine (not shown) with a concentrator and a translator transmits accounting information to remote server 232 and a concentrator (not shown) transmits progressive game play information to the translator 406 in gaming machine 448 of group A. The progressive game play information from group "C" 436 is transmitted from the translator 406 to the progressive game play remote server 308. The progressive game play remote  
20 server 308 also transmits messages to the gaming machines of group "C" 436 through the translator 408.

The concentrator 304 gathers accounting information for the gaming machines of group "A" 400 and transmits the messages via the group "A" network 401 to the translator 404 in gaming machine 440. The translator 404 transmits the accounting  
25 information to accounting remote server 232. For the gaming machines of group "A" 400, the concentrator 302 in gaming machine 440 gathers progressive game play information and transmits the information to the progressive game play remote server 308 using the translator 404. Note that in this example group "A" has one translator (translator 404) and two concentrators (concentrators 302 and 304), one for each of the remote servers  
30 232 and 308. Note also that translator 404 serves as the group "A" translator and translator 406 serves as the group "C" translator.

The game server 318 provides game serving services for group "A" 400. The game server 318 transmits and receives game serving information/services using the group "A" network 401. The game server 320 provides game configuration services to group "A" 400. Game configuration information is transmitted from the game server 320 to the eight gaming machines of group "A" 400 using the group "A" network 400.

FIG. 5 is a block diagram depicting an example of gaming machines with remote server, concentrator, and translator capabilities for all services provided to multiple gaming machine networks or network segments. Three groups of gaming machines including group "A" 500, group "B" 522 and group "C" 536 provide various game playing opportunities to players wishing to play a game on a gaming machine. Group "A" 500 is composed of eight gaming machines including gaming machines 540, 548, 556, 558, 560, 562, 564, and 566. Group "B" 522 may be composed of two or more gaming machines and Group "C" 536 may be composed of two or more gaming machines.

Gaming machine 540 contains the game server 318, the concentrator 302, and the translator 404. Gaming machine 548 contains the game server 320, the concentrator 304, the translator 406. In groups "A", "B", and "C", the game server, the concentrator, the translator may be standard components in each gaming machine. For illustrative purposes, these three parts are identified in gaming machine "A" 540, gaming machine "B" 548, and gaming machine "E" 560. As described with reference to Figs. 2 and 3, game servers including 318, 320 and 532 may each provide a number of gaming services including bonus game play, progressive game play, accounting, game configuration and game serving for gaming machines typically connected in a local network. As described with reference to Figs. 3 and 4, the concentrators including 302, 304 and 534 typically gather game information from a number of gaming machines connected in a local network or network segment and transmit it to a remote server. As described with reference to Fig. 4, the translators including 404, 406 and 536 translate communication protocols to allow communication between a concentrator and a remote server.

In Fig. 5, some of the game servers, including 318, 320 and 532, are configured to act as remote servers such as 232 in Fig. 2 or 308 in Fig. 3. Thus, the game servers including 318, 320 and 532 may provide gaming services to gaming machines outside the group "A" network 501. In Figs. 2, 3, and 4, the game servers also have remote

server capabilities. However, in the hardware implementations described in Figs. 2, 3, and 4, this remote server capability was not described.

Many different gaming services may be provided with the game service network and the associated hardware in Fig.5. For illustrative purposes, the implementation of one set of game services is described for the hardware shown in Fig. 5. The eight gaming machines of group "A" 500 may be connected using a fiber optic loop to form a Group "A" network 501. Using the group "A" network 501, the gaming machines of group "A" including gaming machines 540, 548, 556, 558, 560, 562, 564 and 566 may send and receive messages containing game information from the game servers 318, 320 and 532. The game server 318 and the game server 320 are configured to act as a remote game servers and provide game services to gaming machines from different groups including group "B" 522 and group "C" 536 as well as group "A" 500.

In the current example, the game server 318 provides accounting services to group "A" 500, group "B" 522 and group "C" 536. The game server 318 transmits requests for accounting information to the gaming machines in each of the groups. Additionally, the game server 318 may communicate with entities connected to the network 526. The gaming machines in each group transmit the requested information to the game server 318 through various connections. For example, the gaming machines of group "A" transmit accounting information to the concentrator 302 in group "A" 500 using the group "A" network 501. The concentrator 302 transmits the accounting information from the gaming machines in group "A" to the accounting game server 318. The gaming machines of group "B" 522 transmit accounting information to a concentrator (not shown) in a group "B" gaming machine. The concentrator in group "B" transmits accounting information to the translator 404 in gaming machine 540 via a connection 510 between concentrator and the gaming machine 540. The translator 404 transmits the accounting information to the accounting game server 318. The gaming machines of group "C" 536 transmit accounting information to a concentrator (not shown) in a gaming machine in group "C" which transmits the concentrated accounting information to a translator (not shown) in a gaming machine in group "C". The translator in group "C" 536 transmits accounting information to the gaming server 318 in gaming machine "A" via a connection 512 between the group "C" translator and the gaming machine "A" 540.

The game server 320 provides progressive game play services to group "A" 500, group "B" 522 and group "C" 536. The game server 320 transmits requests for progressive game play information to the gaming machines of groups "A", "B" and "C". For example, using the remoter server capabilities in game server 320, information or instructions, including the current progressive jackpot and requests for game information, may be sent to each gaming machine of groups "A", "B", and "C". The gaming machine in each group may send the requested game information to the game server 320 through various connections. Further, the game server 320 may obtain some of the game information needed for progressive game play from the accounting game server 318 via communication on the group "A" network 501.

The gaming machines of group "A" transmit progressive game play information to the concentrator 534 in gaming machine 560 using the group "A" network 501. The concentrator 534 transmits the progressive game play information from the gaming machines of group "A" to the progressive game play server 320 in gaming machine 548 using the group "A" network 501. The gaming machines of group "B" 522 transmit progressive game play information to a concentrator (not shown) in a gaming machine located in group "B" 522 which transmits the information to a translator (not shown) in a gaming machine in group "B" 522. The translator in a gaming machine in group "B" 522 transmits the progressive game play information to game server 320 in gaming machine 548 via a connection 512 between the group "B" translator and the gaming machine 548. The gaming machines of group "C" 536 transmit progressive game play information to the concentrator 304 in gaming machine 548 via connections 516 between the group "C" gaming machines and the concentrator 304. The concentrator 304 transmits the progressive game play information to the progressive game play server 320.

The game server 532 in gaming machine 560 provides game serving, bonus game play, and game configuration services to the gaming machines of group "A" 500. The game server transmits gaming information and instructions and receives gaming information using the group "A" network 501. In this example, the remote server capabilities of game server 532 in gaming machine 560 are not utilized.

FIG. 6 is a block diagram depicting an example of two gaming machines, a gaming machine 600 and a gaming machine 602, each configured with a standard server for connection in a network. The gaming machine 600 and the gaming machine 602 each

contain a standard game server including the game server 622 and the game server 632. The game server 622 in gaming machine 600 provides game configuration, game serving and game accounting services to the gaming machine 600 and the gaming machine 602. In this example, the game server 632 in gaming machine 602 is not utilized to provide  
5 gaming services. The game server 622 may run on its own microprocessor to perform various game service operations or a microprocessor on the master gaming controller may be used for game service operations. The game server functions, the concentrator functions and translator functions may be provided by software residing on each gaming machine. The communication functions that may be needed for the game server  
10 functions, the concentrator functions and the translator functions may be provided using the main communication boards, 610 and 616 on each gaming machine.

Although gaming machine 600 is used as a game server and gaming machine 602 is not used as a game server, game play on both gaming machines is intended to be similar. Thus, a player playing a video slot game on gaming machine 600 and then a  
15 video slot game on gaming machine 602 would not be able to distinguish that one gaming machine is being used as a game server and the other gaming machine is not being used as a game server from comparing the game play on each machine. For example, the game play on the gaming machine 600 would not be noticeably slower than the game play on the gaming machine 602 when the gaming machine 600 is used as a  
20 game server.

A disk drive associated with the game server 622 is configured with three partitions to store the game information or the game instructions needed to provide each game service. For example, the accounting partition 624 may store the number of games played, the wins and the losses for the gaming machines 600 and 602, etc. The game  
25 serving partition 626 may store the game instructions for one or more of the games utilized by a master gaming controller 624 or a master gaming controller 634 to present a game on the gaming machine 600 or 602. The configuration partition 628 may contain the configuration information needed to initially configure a gaming machine to play a new game. To provide additional game services more partitions may be created on the  
30 hard drive.

An optional removable drive such as a drive 630 and a drive 636 may be included with the gaming machines to enhance the capabilities of the game server 622. The

removable drive 630 may be used to provide additional game services. For example, the removable drive might be configured to provide progressive game play and bonus game play for a number of gaming machines. Additionally, the removable drive may be used to update information on the game server 622. For example, when the optional drive 630  
5 contains a new set of games for game serving, the games may be transferred from the removable drive 630 to the game serving partition 626 on the game server 622. As another example, the optional removable drive may be used as a back-up for storing critical game information including accounting information and access events to the gaming machine.

10 The communication operations between the game server 622 and one or more gaming machines including 602 is directed by the master gaming controller 624. Generally, any form of network communications interface that supports the necessary network protocols may be employed in the gaming machines. For example, if the network employs an Ethernet protocol, then the network interface should support  
15 Ethernet, if the network employs an FDDI protocol, then the network interface should support FDDI, and if the network employs a proprietary protocol, then the network interface should support that protocol. In the example of Figure 6, the network interface includes a main communication board 610. Using the main communication board 610 and a connection 614 between the main communication board 610 and the main  
20 communication board 616, the master gaming controller 624 may transmit messages containing game information or game instructions used for providing one or more game services to the gaming machine 602 and receive game information required to provide a particular game service from the gaming machine 602. These communication operations may be extended to a plurality of gaming machines connected in some manner to the  
25 gaming server 622.

Fig. 7 is a flow diagram depicting a method for providing one or more network game services to a group of gaming machines using a gaming machine with a game server. In step 700, a gaming machine with a game server communicates with one or more gaming machines on the gaming machine network. The communications from the  
30 game server may be messages requesting game information from one or more gaming machines including the gaming machine on which the server resides. For example, the game information request to a gaming machine may ask for the number games played on

the machine or whether the game is currently being played or not. From the game information received from the one or more gaming machines, in step 710, the game server determines that a network gaming service is required for one or more gaming machines on the gaming machine network. For example, from polling a number of

5 gaming machines linked together for bonus game play, the game server may determine that a number of events on the bonus gaming machines have triggered a bonus game event. After determining a network gaming service is required, the gaming server may execute a server operation to provide a network gaming service in step 720. For example,

10 when the game server determines that a bonus game event is required, the game server may send an instruction to the gaming machines in a bonus group instructing each gaming machine to present a bonus game.

Although the foregoing invention has been described in some detail for purposes of clarity of understanding, it will be apparent that certain changes and modifications may be practiced within the scope of the appended claims. For instance, while the

15 gaming machines of this invention have been depicted as having a display screen physically viewed through a vertical glass panel attached to a main gaming machine cabinet, the use of gaming devices in accordance with this invention is not so limited. For example, the display screen features may be provided on a table top gaming machine where the display screen is viewed through a horizontal glass panel.

*What is claimed is:*

1. A gaming machine comprising:  
a master gaming controller that controls a game played on the  
gaming machine;  
a game server that provides one or more game services to a  
plurality of gaming machines within a network of gaming machines; and  
a communication interface connected to a network of gaming  
machines.
2. The gaming machine of claim 1, wherein the game played on the gaming  
machine is selected from the group consisting of slot games, video poker, video  
black jack, keno, and lottery.
3. The gaming machine of claim 1, wherein the game service is progressive  
game play, bonus game play, accounting, game serving or game configuration
4. The gaming machine of claim 1, wherein the gaming machines in the  
network are connected in one or more loops.
5. The gaming machine of claim 1, wherein the plurality of gaming  
machines are connected using fiber optic connections, wire connections, or  
wireless connections.
6. The gaming machine of claim 1, further comprising a concentrator for  
gathering information from a plurality of gaming machine in the network of  
gaming machines.
7. The gaming machine of claim 1, further comprising a translator that  
translates one communication protocol to another communication protocol.

8. The gaming machine of claim 1, wherein the game server is a component in at least one of the plurality of gaming machines in the gaming machine network.
- 5 9. The gaming machine of claim 1, wherein the game server includes a microprocessor for performing game server functions.
- 10 10. The gaming machine of claim 1, further comprising a memory device storing game information wherein the memory device is removable from the gaming machine.
11. The gaming machine of claim 1, further comprising a memory device storing game information from a plurality of gaming machines
- 15 12. The gaming machine of claim 11, wherein the game information is a number of games played, a number of wins, a number of losses, a game event, and an amount of money wagered for one or more gaming machines.
- 20 13. The gaming machine of claim 11, wherein the game information is game coding instructions that allow a master gaming controller to present the game to a player on the gaming machine.
- 25 14. The gaming machine of claim 11, wherein the game information is game configuration information that configures a gaming machine for the game play of a particular game.
- 30 15. The gaming machine of claim 1, further comprising an input device and a display device wherein the input device and the display device enable a player to select the game for game play from a list of games displayed on the display screen wherein the coding instructions for each game on the list of games are stored on the game server.

16. The gaming machine of claim 1, wherein the network is a progressive game network, a casino area network or a bonus game network.
17. A method for providing game services to a group of gaming machines  
5 connected in a network using a gaming machine having a master gaming controller and a game server, the method comprising:
- communicating with one or more gaming machines on the gaming machine network wherein each gaming machine presents a game to a player playing a game on the gaming machine;
  - 10 determining that a network gaming service is required for one or more gaming machines in the network; and
  - executing a server operation to provide a network gaming service for one or more gaming machines in the network.
18. The method of claim 17, wherein the game is selected from the group consisting of slot games, video poker, video black jack, keno, and lottery.
19. The method of claim 17, wherein the game service is progressive game play, bonus game play, accounting, game serving or game configuration.
- 20
20. The method of claim 17, further comprising:
- sending a signal requesting game information to a plurality of gaming machines connected to the network;
  - receiving game information from one or more gaming machines  
25 connected to the network; and
  - storing the game information from the plurality of gaming machines on the game server;
21. The method of claim 19, further comprising concentrating game  
30 information from a plurality of gaming machines wherein the game information is concentrated using a concentrator within a gaming machine with a game server and sending the game information to a translator or to a game server.

22. The method of claim 19, further comprising translating game information from a plurality of gaming machines from one communication protocol to another communication protocol wherein the game information is translated using a translator within a gaming machine with a game server and sending the game information to a game server.

23. The method of claim 17, further comprising,  
sending a signal instructing the master gaming controller on a plurality of gaming machines to perform a game operation for the game service

24. The method of claim 23, wherein the game operation is presenting a bonus game or displaying a progressive jackpot.

25. The method of claim 20, wherein the game information is selected from the group consisting of a number of games played, a number of wins, a number of losses, a game event, and an amount of money wagered for one or more gaming machines.

26. The method of claim 17, wherein the network is a progressive game network, a bonus game network or a casino area network.

27. A method for providing game serving to a group of gaming machines connected in a network using a gaming machine having a master gaming controller and a game server, the method comprising,  
displaying a list of games on a first gaming machine;  
receiving a game selection signal for a game selection on the first gaming machine;  
transmitting the game selection signal to a second gaming machine; and  
downloading coding instructions for the game selection to said first gaming machine from the game server on said second gaming machine wherein the coding instructions allow the master gaming controller on said first gaming machine to present the game selection to a player.

28. The gaming machine of claim 27, wherein the game selection is selected from the group consisting of video poker, video black jack, slot games, keno, video pachinko or lottery.

5 29. A method for providing game configurations to a group of gaming machines connected in a network using a gaming machine having a master gaming controller and a game server, the method comprising,  
configuring a first gaming machine to present a game;  
storing the game configuration information to the game server on said  
10 first gaming machine;  
downloading game configuration information for the game to a second gaming machine from the game server on said first gaming machine wherein the game configuration information allows the master gaming controller on said second gaming machine to present the game on said  
15 first gaming machine;

30. The gaming machine of claim 29, wherein the game is selected from the group consisting of video poker, video black jack, slot games, keno, video pachinko or lottery.

20

31. The gaming machine of claim 29, further comprising downloading game configuration information for the game to a third gaming machine from the game server on said first gaming machine wherein the game configuration information allows the master gaming controller on said third gaming machine to present the  
25 game on said first gaming machine;

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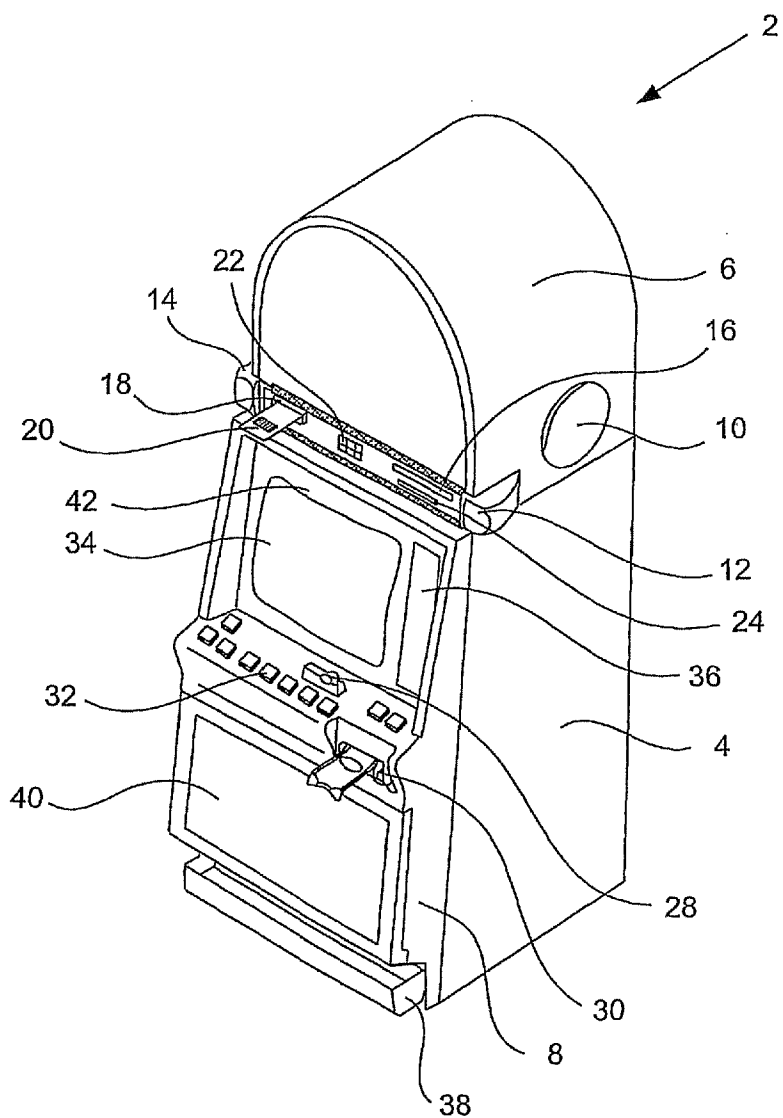


Figure 1

**Figure 2**

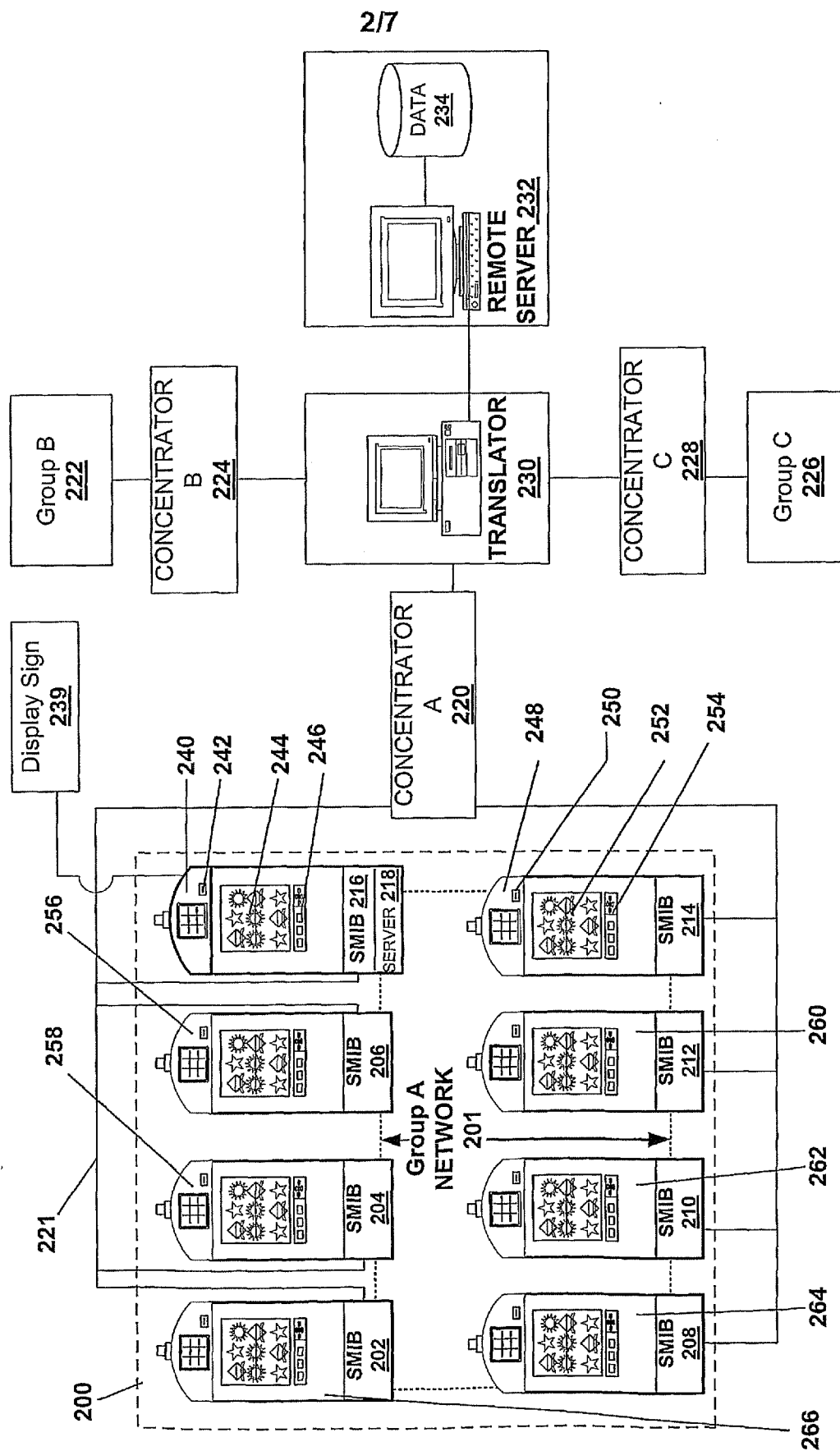
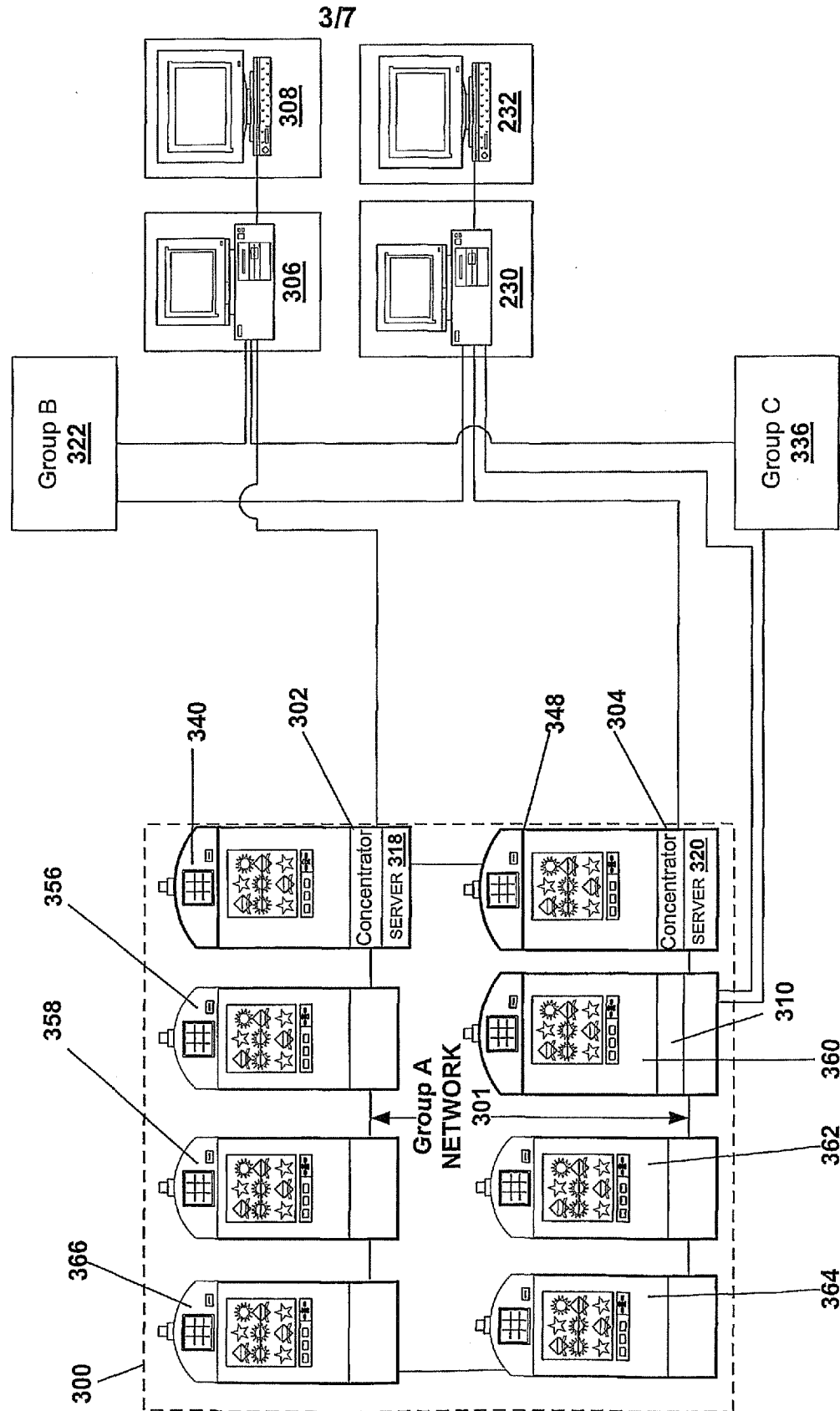
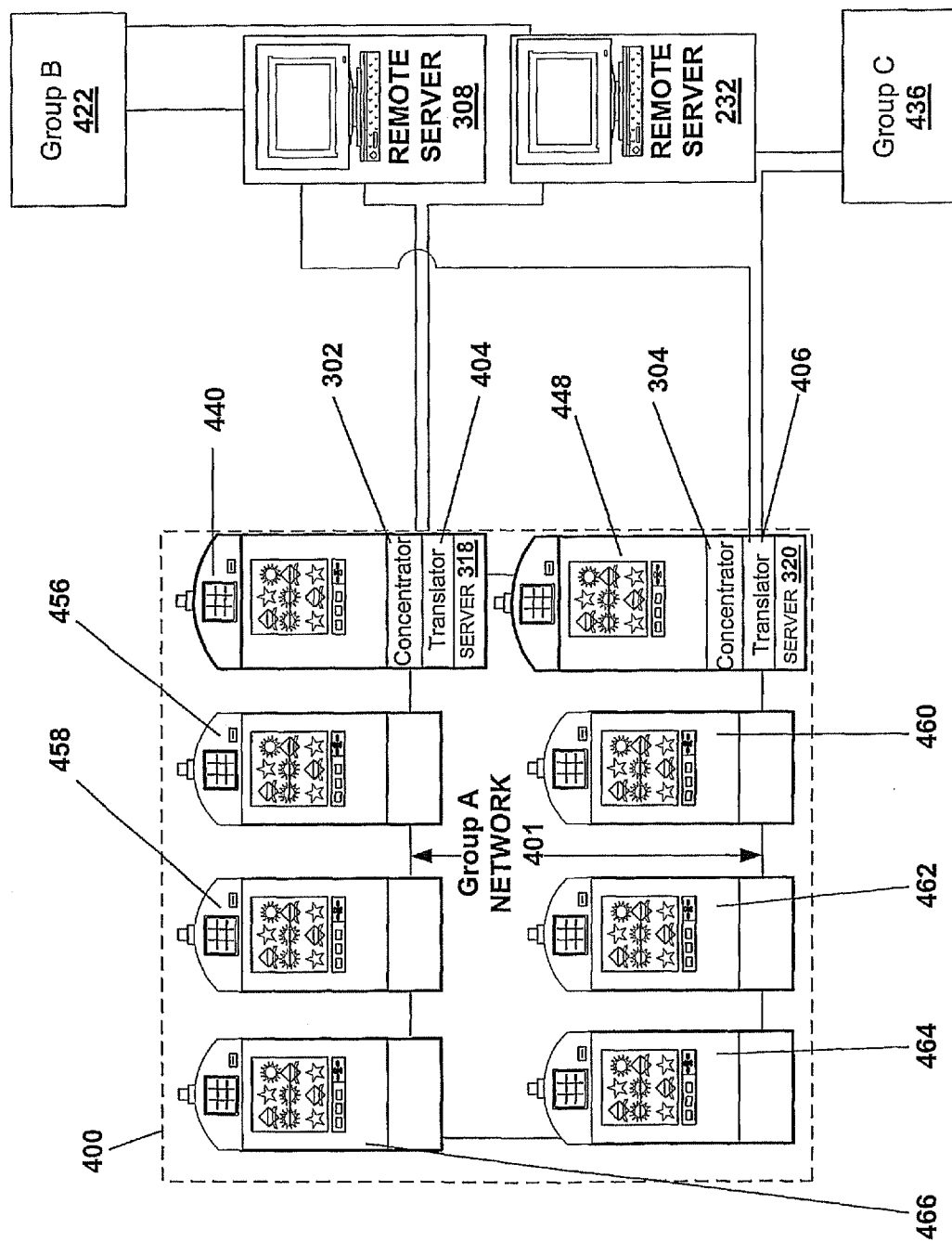


Figure 3



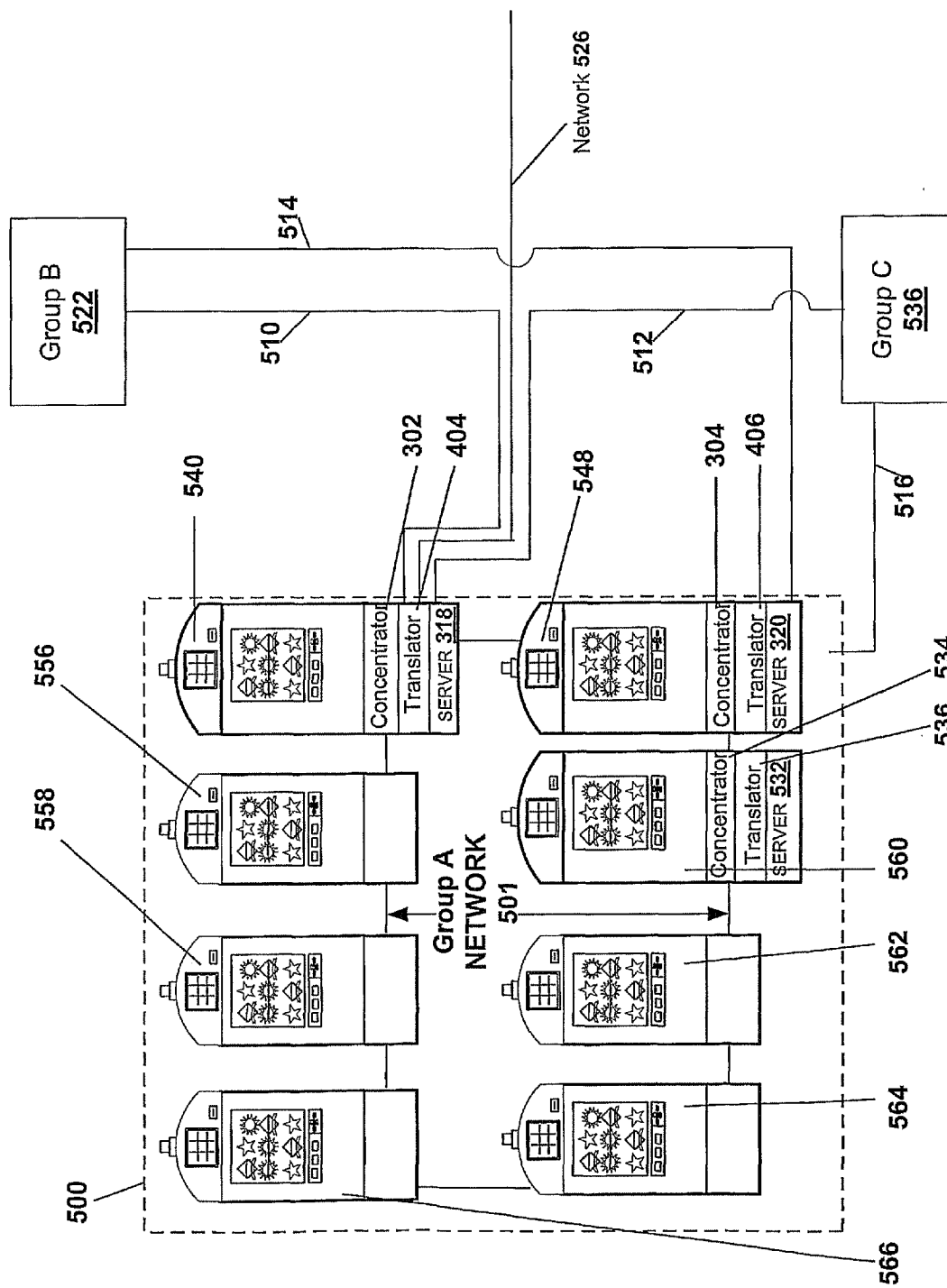
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Figure 4



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Figure 5



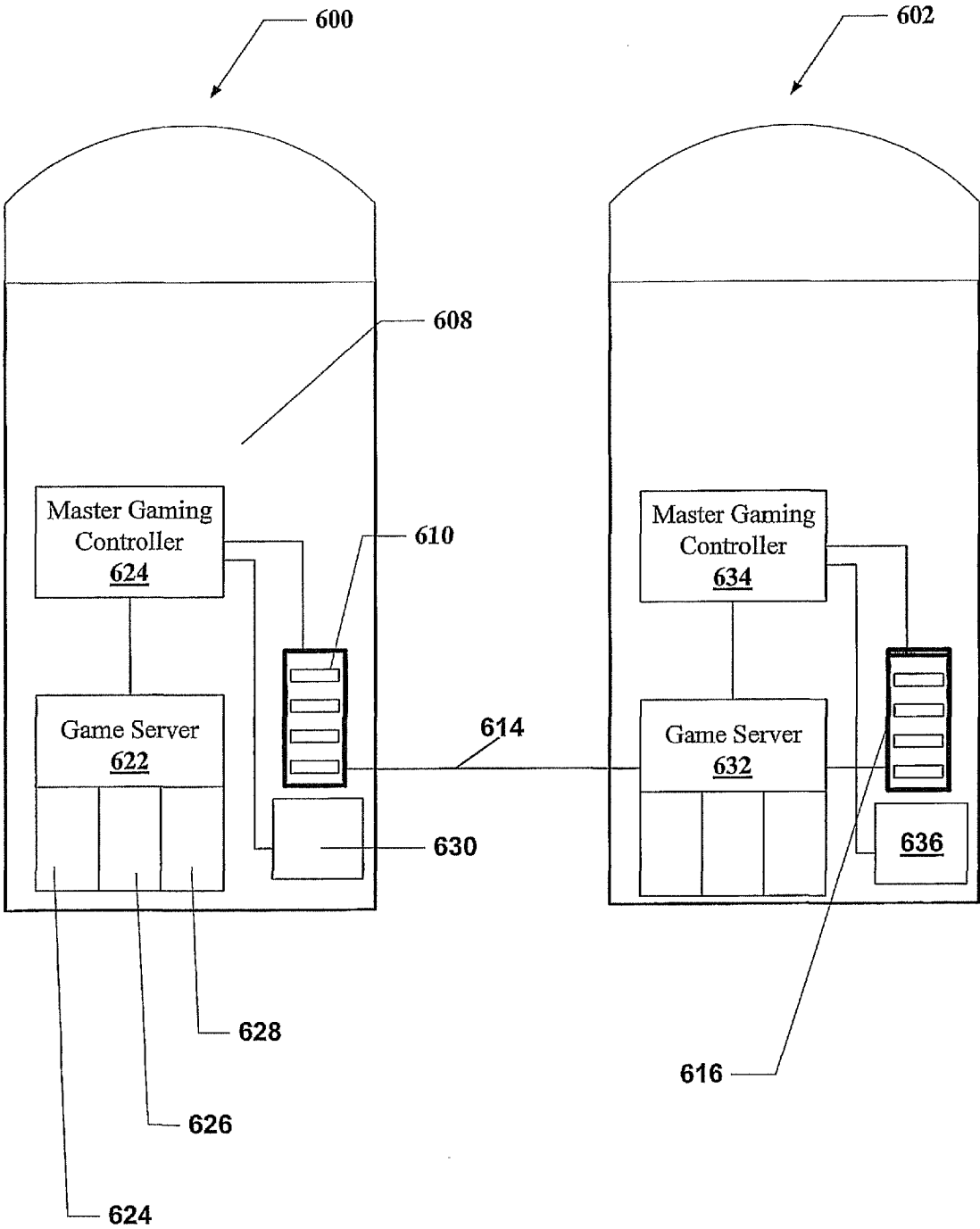


Figure 6

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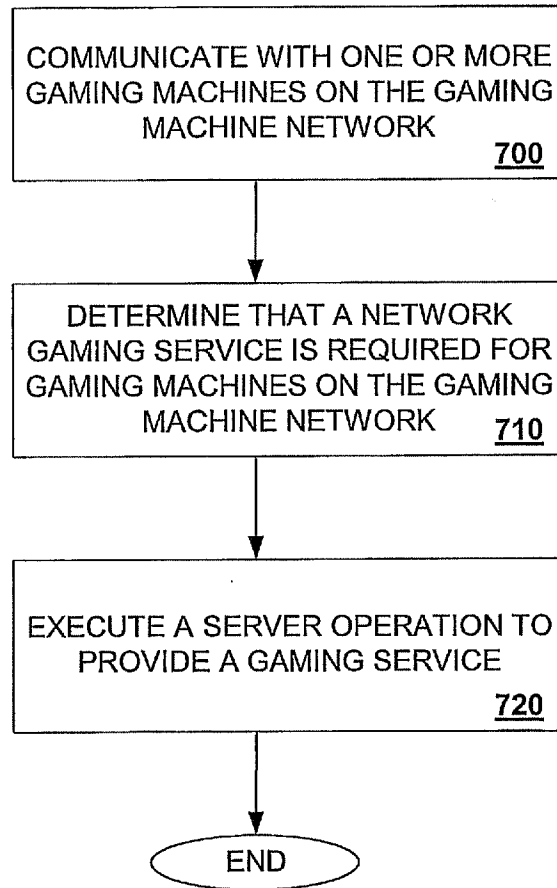


FIGURE 7

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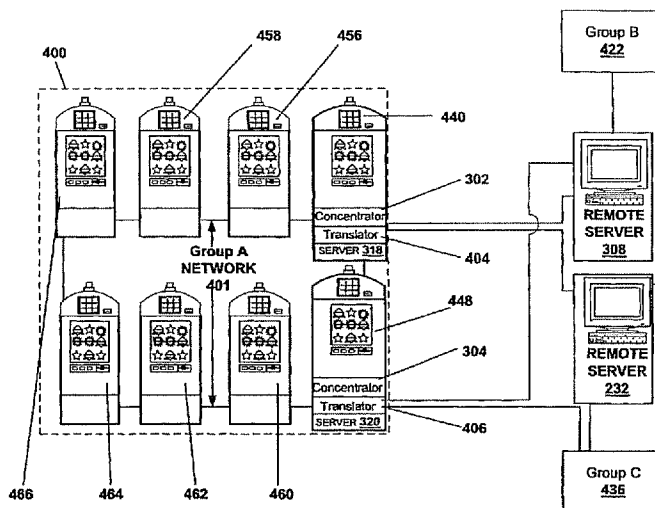
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(54) Title: **USING A GAMING MACHINE AS A SERVER**



(57) Abstract: A disclosed gaming machine provides a game server. The game server may be used to provide a number of game services, including accounting, bonus game play, progressive game play, game serving and game configuration, to a group of gaming machine connected in a network. The gaming machines can employ a number of standard components including a game server, a concentrator, and a translator. The concentrator gathers game information from a number of gaming machines connected in a network segment. The translator may be used to convert one communication protocol to another communication protocol for the transmission of game information. The game information may be utilized by the game server to provide a game service. When used for game serving, the game server may allow a player to select a game from a list of games stored on the game server on one gaming machine for game play on another gaming machine.



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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/17896

A. CLASSIFICATION OF SUBJECT MATTER  
 IPC 7 G07F17/32 G07D9/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G07D G06K G06F G07F A63F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 197 30 002 A (NSM AG) 14 January 1999 (1999-01-14)  column 4, line 6 - line 9 column 4, line 22 - line 27 -----	1,2,4,5, 8,15,17, 18,27-30
A	US 4 856 787 A (ITKIS BORIS) 15 August 1989 (1989-08-15) abstract column 1, line 48 - line 53 column 2, line 48 - line 65 column 5, line 44 - line 60 column 6, line 2 - line 6 -----	1-6,17, 18,27-30



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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Date of the actual completion of the international search

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Information on patent family members

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